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ABSTRACT

Retention and promotion were studied to determine which offers more help to low achievers. Under Texas House Bill 72, elementary promotion is tied to the essential elements, and secondary students must meet specified requirements. In the Austin (Texas) Independent School District (AISD) in 1986-87, 4,115 students repeated all or part of a grade. Major findings were: (1) over time, elementary retainees failed to show long-term improvements in achievement and showed lower achievement than did promoted low achievers; (2) the number of elementary students retained increased after the AISD adopted a new policy in 1981; (3) the number of secondary students retained increased by 46% between 1985-86 and 1986-87; and (4) summer school and programs aimed at low achievements helped a significant number of students (N=504) avoid repeating an entire grade. In the long run, retention has not helped most elementary students overcome their deficits in learning. It appears best to provide alternative instruction without retaining most low achievers. If retained, students also need special instruction. At the secondary level, minimizing the number of credit units repeated, providing intensive remediation in basic skills, and promoting students as soon as possible may decrease the likelihood of students dropping out. Appendices constituting the bulk of the document provide data on the retention program achievement analysis, descriptive statistics for the retention and promotion programs, and district-wide surveys and a literature review concerning the retention program. (SLD)

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RETENTION AND PROMOTION
1986-87 FINAL TECHNICAL REPORT

Publication No. 86.30

September 30, 1987

Assistant Director:
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88.30

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PROMOTION OR RETENTION--HAVE POLICIES PASSED OR FAILED?
EXECUTIVE SUMMARY

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Determining the best way to help very low achievers learn is a perennial issue. Texas House Bill 72 brought changes in the criteria for promotion and retention at both the elementary and secondary levels. Elementary promotion is now tied to mastery of the essential elements. Secondary students must earn a grade of 70 and meet attendance requirements to pass their courses. In addition, they must maintain an average of 70 in all courses and a minimum of 70 in certain required courses to be promoted.

In AISD in 1986-87, 4,118 students are repeating part or all of a grade--2,150 elementary and junior high students are repeating a full grade, 170 junior high students are repeating one semester, and 1,798 senior high students are repeating one credit unit or more. AISD spends approximately $3,500 per student to provide an extra full year of instruction. Prorating this amount and assuming students will not drop out, a conservative estimate of the overall cost to AISD in 1986-87 is $9,081,100.

MAJOR FINDINGS

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1. Most elementary retainees fail to show long-term improvements in achievement. Over time, elementary retainees show significantly lower achievement scores than similar low achievers who are promoted.

2. The number of elementary students actually retained more than doubled (from 573 to 1,251) after AISD adopted a new policy in spring, 1981. The full impact of House Bill (HB) 72 will not be felt until spring, 1987.

3. The number of secondary students actually retained increased 46% (from 1,956 to 2,864) between 1985-86 and 1986-87, largely at the junior high level as a result of the stricter requirements of HB 72.

4. Summer school helped 504 secondary students to avoid repeating an entire grade; 170 junior high students were promoted after the first semester through the Transitional Academic Program (TAP) and the Academic Incentive Program (AIP).

Retention has not helped most elementary students overcome their deficit in learning in the long run. It appears best to provide alternative instruction without retaining most low achievers. If retained, students also need special instruction. At the secondary level, minimizing the number of credit units repeated, providing intense remediation in basic skills, and promoting students as soon as possible may decrease the likelihood of dropping out.

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PROMOTION OR RETENTION
FINAL REPORT

HOW ARE RETENTION DECISIONS MADE?

ELEMENTARY POLICY

AISD Policy: Before and After 1981-82

Prior to 1981-82, AISD's elementary retention policy was very general. A revised policy was adopted in April, 1981, which officially went into effect during the 1981-82 school year. It was more specific than the old policy in indicating that:

- All students at least one year behind in reading basals at grades one through six and/or mathematics competencies at grades four through six were to be considered for retention.
- Students generally were to be retained only once in grades K-3 and once in 4-6.
- Teachers and principals had the final responsibility for retention decisions. Parents had to be notified and conferred with at least two months before school ended regarding possible retentions.

The Impact of House Bill 72

The State Board of Education rules based on the House Bill were not in effect until this year (1986-87). These rules indicate that:

- To be promoted, a student must master the essential elements necessary to be successful at the next grade level;
- No student may be retained more than once in grades one through four or once in grades five through eight (except in very unusual cases with parent permission); and
- A student may be placed in the next grade if he or she is achieving at maximum ability and alternative program provisions are made. The student's instructional level is to be indicated on the report card.

SECONDARY POLICY

AISD Policy Before 1985-86

Junior high. Students were promoted based on a point system. A full-year course earned one point; four points were needed for promotion. Students one or two points short could be promoted if they took and passed one or two summer school courses. Placement in the next grade was possible in unusual circumstances (previous retentions, age, social, or other factors) but generally students were retained.

Senior high. Students were promoted based on successful completion of 5, 10, or 15 credits. One semester of a course counts for .5 of a credit.

The Impact of House Bill 72: 1985-86

The full impact of House Bill 72 was felt at the secondary level in 1985-86. New State Board of Education (SBOE) rules specified that:

- To be promoted, students shall attain an **overall** average of 70 or above in all courses. In addition, students must attain an average of 70 or above in three of the four following subject areas: language arts, mathematics, social studies, and science.
- No student shall be retained more than once in grades 5-8 (except in unusual cases with parent permission).
- Students in grades 7 and 8 who fail to meet promotion requirements shall be retained or provided alternative programs.
- Alternative placements involve changes in a student's instructional schedule to allow them to meet promotion standards. Examples include:
    - A transfer to another school;
    - An assignment to a self-contained remedial class; or
    - Enrollment in an alternative instructional program.

HOW MANY STUDENTS ARE RETAINED?

The changes in retention policies have had a profound impact on the number of students retained.

In years past, the number of students recommended for retention in the spring of each year was reported. However, this did not reflect the number actually repeating the next grade because of factors such as student mobility (students leaving AISD), grade changes, and summer school. The figures reported here reflect the number of students listed in the same grade in the spring of two subsequent years. For 1986-87, those in the same grade in May and October of 1986 are included. Therefore, in this report, **retainees are being defined as those actually repeating part or all of a grade.** At the high school level, students repeat only credits failed but are listed in the lower grade.

FIGURE 1
AISD STUDENTS REPEATING K-6 IN 1986-87

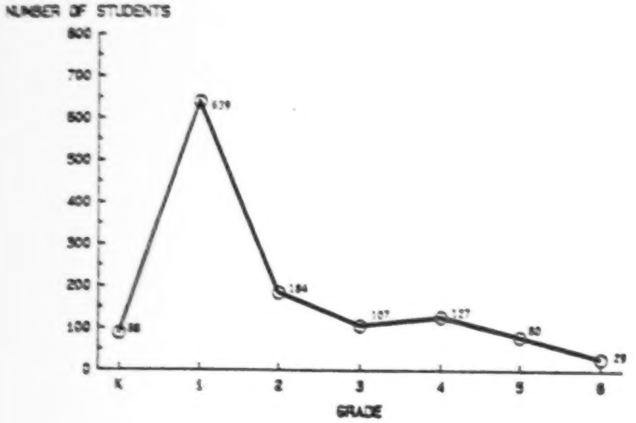
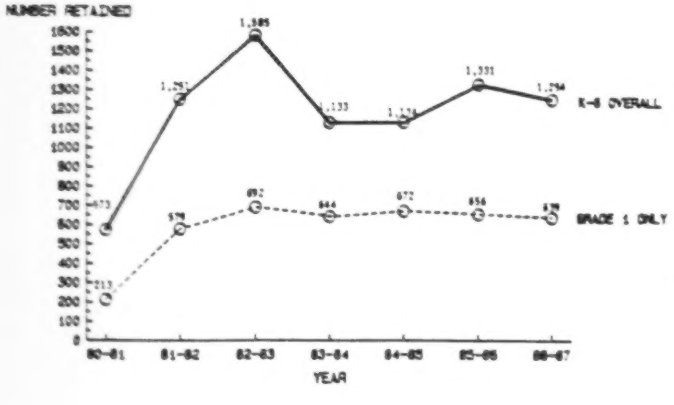


FIGURE 2
STUDENTS REPEATING K-6
1980-81 THROUGH 1986-87



ELEMENTARY LEVEL

- The number of elementary retainees **doubled** between 1980-81 and 1981-82 with the adoption of the revised retention policy. The number retained rose again, to its highest point, in 1982-83 when the revised policy was first put into effect. The number of retainees has decreased and stabilized since then. The impact of House Bill 72 will be felt this spring; implications for next year's rates are not clear as yet.
- Grade 1 has had the highest retention rate at the elementary level throughout this period. First graders have represented 37% (in 1980-81) to 59% (1984-85) of those retained. First graders represent 51% of the elementary students retained this year. The **number** of first graders repeating a grade has been around 600 students since 1981-82.
- The number retained at the primary grades (1-3) exceeds the number retained at the intermediate level (4-6).

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FIGURE 3
STUDENTS REPEATING 7-12 IN 1986-87

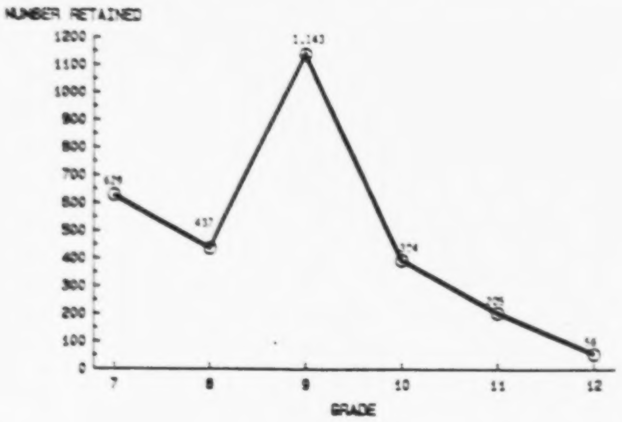


FIGURE 4
STUDENTS REPEATING 7-8
FROM 1980-81 THROUGH 1986-87

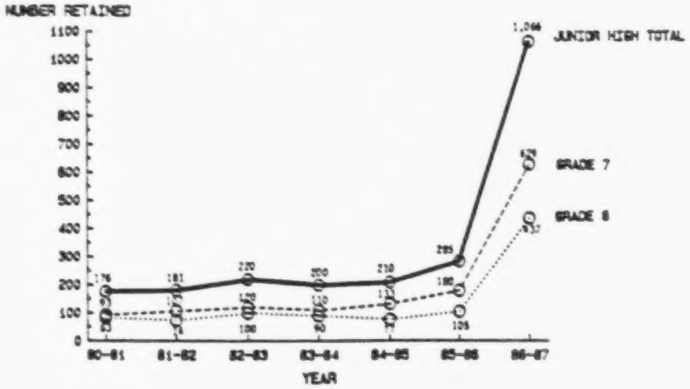
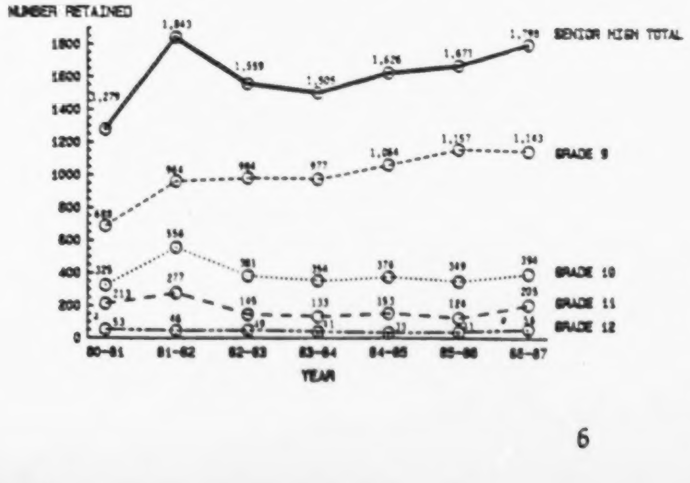


FIGURE 5
STUDENTS REPEATING 9-12
FROM 1980-81 THROUGH 1986-87



JUNIOR HIGH LEVEL

- The number of junior high school students repeating a grade was fairly stable from 1980-81 to 1985-86. However, the rate rose **dramatically** (374%) between 1985-86 and 1986-87 with the implementation of new rules associated with HB 72.
- Seventh graders have higher retention rates than eighth graders. In 1986-1987, the number retained at seventh grade (629) and first grade (639) were about the same.

SENIOR HIGH LEVEL

- The number of senior high students who failed to meet promotion criteria has been rising slowly since 1983-84. The increase between 1985-86 and 1986-87 was 7.6%.
- **By far, grade 9 has the highest number of students retained** at any grade level K-12. The number of ninth graders failing to meet promotion standards in 1986-87 is 1,143.

OVERALL

- The total number of students failing to meet promotion standards has doubled in AISD from 1980-81 (2,028) to 1986-87 (4,118).
- Secondary retention rates increased 46% between 1985-86 and 1986-87 (from 1,956 to 2,864).
- If kindergarten is excluded, the first grade in each grade span (1-6, 7-8, 9-12) has the highest number of retainees.
- Most elementary and junior high retainees (about 2,150) repeat a full grade; new programs started in 1986-87 at the junior high level allowed mid-year promotion for 170 students. High school retainees (1,798) repeat only credit units failed.

Thus, retention affects a large number of AISD students--a number on the rise in recent years. Given this, some key questions merit careful consideration.

- Is retention effective?
- What is the financial cost of retention?
- Can the number of students retained be reduced?
- What instructional approaches are most likely to help these students?

WHAT IS THE IMPACT OF RETENTION?

IMPACT ON STUDENTS--PAST NATIONAL AND AISD RESEARCH

AISD conducted research from 1981-82 through 1983-84 on students retained at the elementary level from 1979-80 through 1982-83. A great deal of research has also been done nationally.

Short-Term Effects

One-year retainee gains. In AISD, retainees' average ITBS grade equivalent (GE) gains were greater in reading (.85) than in mathematics (.65) during the year repeated. The amount of achievement growth by individual retainees varied greatly, from actual losses in GE scores to gains of over two years.

Success study. About three in four of the teachers and parents of a sample of 121 AISD 1983-84 elementary retainees thought the child had been successful by the end of the grade repeated. However, ITBS reading results showed only half of these students gained .8 GE (the national average for low achievers) or more after a year of instruction. One fifth of the retainees were considered successful by only one or none of the three information sources.

Promoted versus retained low achievers. Both national and local research found that low achievers who were promoted made significantly greater gains than those retained after one year. (These studies generally matched students on as many factors as possible, but the comparisons are not perfect. In AISD, however, we found a wide variation in retention rates. This made it more likely that retained students were similar to promoted students in other schools.)

Attitudes and self-concept. A review of the research nationwide by Holmes and Mathews found that retention generally hurts students' self-esteem and attitude toward school (although some individual students might improve).

Long-Term Effects

Dropping out. National and AISD research has found retention and dropping out to be highly correlated. Students older than average for their grade level were found to be 2.7 times more likely to drop out than those on grade level in a recent AISD ORE study. Students with low grade point averages were also more likely to drop out than other students.

A recent study in California urban districts indicated that most of those retained in grades 1 and 2 failed to graduate. They found dropouts were five times more-likely than nondropouts to have been retained.

While a causal link cannot be proven, a strong relationship has been found between dropping out and retention.

Patterns of achievement growth. The growth of retained students tends to increase in **reading** (from an average of six months to eight months for a year of instruction) during the grade repeated. However, reading gains decline once again when the students are promoted. This suggests that retention in itself is not enough; students need continued support once promoted.

The pattern in **mathematics** is the opposite. Students' growth declines (from almost eight to six months gains per year of instruction) during the year repeated. Growth increases once again when the students are promoted. This suggests students are not adequately challenged during the retention year, and their mathematics progress is hurt by retention.

Achievement followups. Most students retained fail to show enough growth in subsequent years to keep up with even their new younger agemates. They may advance to the "middle" group for a year or two, but eventually most end up right back in the "low" group.

Comparisons after two and three years of the progress of elementary low achievers retained in AISD with similar students promoted generally shows significantly greater progress for those promoted. Differences are greater in mathematics than reading (but present in both areas).

IMPACT ON STUDENTS--AISD RESEARCH 1986-87

Five-Year Follow-up

This study focused on the progress of 243 students repeating first grade in 1981-82 and matched low achievers. They were followed through 1985-86 in terms of subsequent promotion and achievement. Over the years, the findings of differences between retained students and a group of similar students not retained have been challenged by persons who believe that the fact that some students were retained and others promoted means that they are not similar in some key way. ORE does not discount this issue totally. However, analysis of retention patterns and rates across AISD schools indicates that retention decisions are made differently in different schools. Therefore, we conclude that students similar to the retainees on all factors other than school assignment do exist. In addition, the consistency and extent to which achievement differences are evident between retainees and similar nonretainees is convincing evidence to support the conclusions reported here. Research at the national level has also found the same patterns.

Promotion status. The status of the 243 students in each of the reading groups (retained and not) was checked as of February, 1987. About three fourths of each group were still enrolled. If students were not retained after grade 1, the retainees would now be in grades 6 (for those retained) and 7 (for those promoted). In reality, 12.5% of the retainees were retained subsequently (one was retained twice); 38.6% of the matched group was retained subsequently (two were retained twice).

FIGURE 6
1986-87 GRADE ASSIGNMENT OF STUDENTS
RETAINED IN 1980-81 AND THEIR MATCHES.

Grade in 1986-87	Retainees		Matches	
	#	%	#	%
4	1	.5%		
5	22	12.0%	2	1.1%
6	156	85.2%	69	37.5%
7	4	2.2%	113	61.4%
Total	183	100.0%	184	100.0%

Special education and other characteristics. Figure 7 shows other characteristics of the two groups by February, 1987. Differences in the two groups did emerge over the five-year period. Students retained in 1980-81 did appear more likely to be subsequently placed in special education programs (perhaps because retention had already been tried). Matched students were more likely to be subsequently retained.

FIGURE 7
CURRENT (FEBRUARY, 1987) STATUS OF LOW ACHIEVERS RETAINED AND PROMOTED AS FIRST GRADERS IN 1980-81

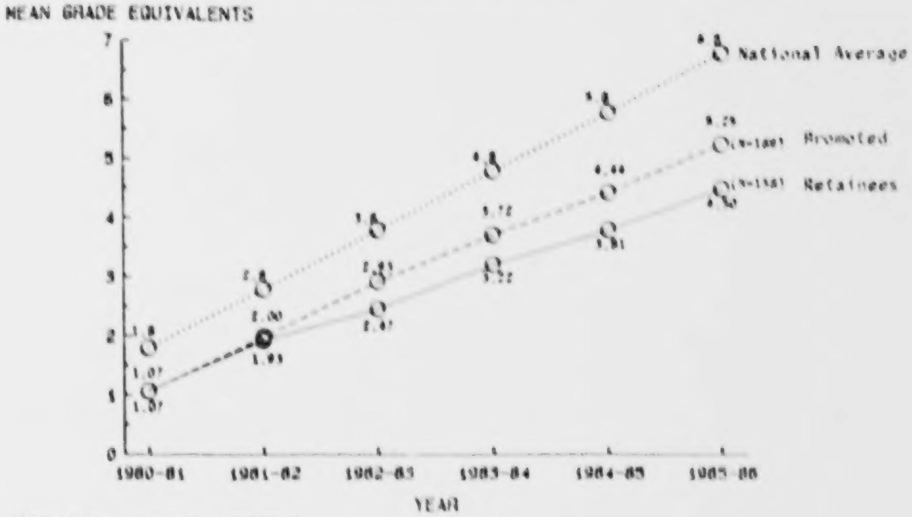
CHARACTERISTICS	RETAINED %	PROMOTED %
Special Education	21.3%	10.3%
Ethnicity		
Black	33.9%	39.1%
Hispanic	55.2%	44.0%
Anglo/Other	10.9%	17.9%
Sex		
Male	58.5%	59.2%
Female	41.5%	40.8%
Low Income	73.0%	60.0%

Achievement status. The original groups of retainees and matches, which were matched separately for reading and mathematics, were used as a starting point. To be included in the achievement sample, students had to have valid ITBS Reading Total and/or Mathematics Total scores for spring, 1986. Of the original groups, 186 first grade retainees and 189 promoted low achievers met these criteria. Characteristics of the two groups were similar to those discussed above except that special education students were excluded. Pretest scores in reading and mathematics for the two groups were found to be very close.

Mean scores were determined for each year for the two groups and compared to the national average (see Figures 8 and 9). Regression analyses were also run to compare the 1985-86 achievement of the two groups in reading and mathematics. Results revealed that:

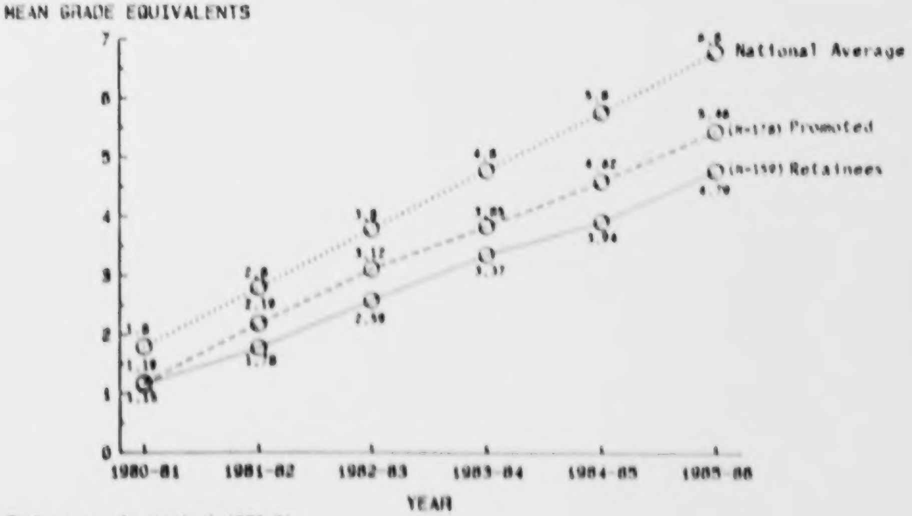
- In reading, retainees gained .86 GE during the repeated year but gained less thereafter. In mathematics, retainees gained .63 GE during the repeated year with generally slightly greater gains thereafter. Growth rates were not high enough in either area to keep students up to the class average--even with younger classmates.
- In both reading and mathematics, the students promoted in first grade were found to show significantly ($p < .01$) higher scores than those retained by 1985-86. Differences in both areas were about .75 of a grade equivalent (GE) year by 1985-86.
- Both retainees and promoted low achievers still scored well below the national average for their age (with retainees further behind) and their grade (with both groups about 1.4 years below average).

FIGURE 8
ITBS READING TOTAL SCORES OF FIRST GRADERS REPEATING A GRADE IN 1981-82 AND MATCHED PROMOTED LOW ACHIEVERS



Both groups in grade 1 1980-81.
Retainees in grade 1 1981-82;
matches in grade 2.

FIGURE 9
ITBS MATHEMATICS TOTAL SCORES OF FIRST GRADERS REPEATING A GRADE IN 1981-82 AND MATCHED PROMOTED LOW ACHIEVERS



Both groups in grade 1 1980-81.
Retainees in grade 1 1981-82;
matches in grade 2.

- In reading, both groups appeared to gain about .9 GE year in 1981-82 regardless of whether they were retained in first grade or promoted. Retainees' average GE gains were smaller than those of promoted low achievers in subsequent years. The difference between groups therefore broadened.

- In mathematics, those retained in grade 1 fell behind promoted students in 1981-82 (their retention year) and stayed behind subsequently. The gap again broadened slightly across the years.

These results suggest that retention does not meet its goal of helping students catch up to grade level and staying there. Retainees' growth rates are not improved in the long run so they fall behind their younger classmates. Those promoted showed better growth in both reading and mathematics than those retained in first grade. This is most dramatically shown for mathematics but also appears in reading after the retention year. Both groups seem to occupy a low position relative to their classmates after first grade. The level of challenge in the material presented to each group may be a crucial variable. Factors such as teacher and student expectations and student learning strategies may also play a part. **This research supports the position that placement with special help is a better alternative for most low achievers than is retention.**

IMPACT ON THE SYSTEM--FINANCIAL COSTS

Given the fairly negative findings regarding the impact of retention on student achievement, the financial cost of retention becomes an important consideration. Most (2,175) elementary and junior high students repeat a full year; 170 junior high participants in a new alternative program (Transitional Academic Program) were promoted after one semester. AISD spends approximately $3,500 per student to provide an extra full year of instruction ($1,750 for one semester). Senior high students repeat only courses they fail, so the amount of time lost varies. The 1,798 senior high students are therefore reflected conservatively in this cost estimate as repeating .20 of a year (two courses or $700). **Assuming these students will not drop out, the minimum overall cost of 4,118 retainees to AISD in 1986-87 will be $9,081,100.**

OVERALL IMPACT OF RETENTION

Thus, the impact of retention on most students and the school system overall generally appears negative. Research supports the position that placement with special help is a better alternative for most low achievers than is retention.

The key to success for very low achieving students appears to be providing a different approach to instruction.

Figure 10
Retention Costs and Benefits

Costs for Most Students

- Achievement growth rate in mathematics & reading does not improve long-term. Therefore, students fall behind again.
- Loss of a year--an extra year is needed to graduate
- More negative attitudes toward school and self
- Loss of peer group
- High risk of dropping out
- About $9,081,100 for 4,118 retainees for the school system

Benefits for a Few Students

- Better grasp of concepts, increased rate of learning
- More success experiences--better attitudes toward school and self-esteem
- Better TEAMS mastery

CAN THE NUMBER OF STUDENTS RETAINED BE REDUCED?

ELEMENTARY

At the elementary level, students who fail to master essential elements for their grade level can be retained or placed in the next grade. Given the research results, placement with special help appears to be a better option for most students than retention. Research provides information on students who appear to benefit from retention and alternative instructional approaches.

Students Likely to Benefit

Predicting who will benefit is difficult. However, some research is relevant.

- One national study (Sandoval and Hughes) found that first graders who benefited from retention tended to be those who were **relatively stronger initially.** They had:
    - Some academic skills (had made some progress in first grade initially),
    - Good self-concepts,
    - Adequate social skills,
    - Parents who accepted retention and worked with the school, and
    - Teachers confident in the retention decision.
- Medway reviewed retention research and concluded that the best retention candidates were primary students, chronologically young, not opposed to retention, with parents willing to work with them.
- Twelve interviews with AISD teachers of retainees who had shown very large versus small achievement gains suggested that retainees who showed large gains after one year had **identifiable problems and teachers who developed and implemented specific plans to address them** (often showing great perseverance).
- An AISD and a national study attempted to identify a pattern of characteristics of successful retainees from centralized computer files--no pattern emerged in either study.

Prevention

Prekindergarten programs in AISD and nationwide have been found to have positive short-term effects on student achievement. National studies have shown long-term benefits of pre-K programs on retention, special education, and discipline rates.

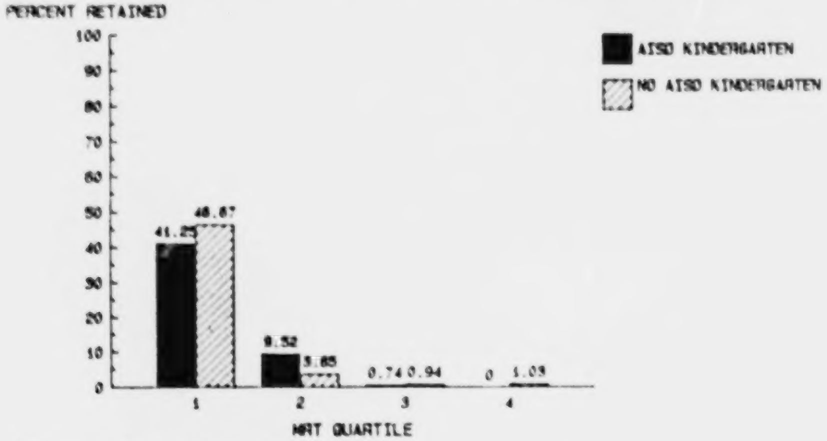
The question of whether participation in AISD's **kindergarten** program helped to prevent first-grade retention was investigated this year. The retention rates of AISD students in first grade for the first time in 1985-86 were examined for those who did and did not attend AISD's kindergarten program in 1984-85. A previous study of kindergarten participation showed that almost all AISD first graders have some kindergarten experience. Therefore, this comparison is mostly AISD kindergarten attenders versus attenders of other kindergarten programs. The Metropolitan Readiness Test (MRT), given in the fall of first grade, was used to control for differences in achievement levels. The retention rates of students scoring in each quartile were compared.

Figure 11 illustrates the percentage and number of students with and without AISD kindergarten who were retained (by MRT quartile). Analyses revealed that:

- There was no significant difference in the percentage of those attending and not attending AISD kindergarten who were retained.
- Most of those retained as first graders scored in the first quartile on the MRT (regardless of kindergarten participation). Almost all others retained scored in the second quartile on the MRT.

Thus, participation in AISD's kindergarten program did not reduce the chances of retention. Again, almost all of those students who did not attend an AISD kindergarten did attend kindergarten elsewhere. Some type of school experience at this grade level may indeed be beneficial.

FIGURE 11
RETENTION RATE OF 1985-86 FIRST GRADERS
ATTENDING AND NOT ATTENDING AISD KINDERGARTEN



MRT - Metropolitan Readiness Test
Fall, 1985

Instructional Interventions

Doing something different with very low achievers seems to be the most important key to improvement. New AISD policy emphasizes special attention be given to retainees' instructional program whether retained or placed. Options include:

- Compensatory reading and/or mathematics programs (e.g., Chapter 1, Chapter 1 Migrant, SCE, bilingual, Teach and Reach),
- Transition classes (K-1 or 1-2),
- Special education,
- Special curriculum groupings (across or within grades),
- Tutoring (by teachers, older students, parents, peers),
- Motivational instructional techniques,
- Extended school day, and
- Summer school.

The least familiar approaches may be transition classes and special classroom groupings; a description of these may be helpful.

Transition classes select students who are not ready for the next year's curriculum and provide a combination of material from the curriculums of the two grades. Most programs have been at the K-1 and 1-2 level. Casis, Langford, and Oak Hill presently have such programs. Models vary across schools. Students are placed at the next grade level for the program. Students who make sufficient progress may be promoted to the next grade (e.g., K-1-2); others will be retained (e.g., K-1-1). While it must be recognized that these classes still cost some students and the school system an extra year, at least the curriculum is paced and tailored to students' needs, avoids repetition, and provides the possibility of promotion.

FIGURE 12
1986-87 K-1 TRANSITION CLASSES

	Casis	Langford	Oak Hill
Students Identified:	Fall, 1987	Spring, 1987	Spring, 1986
Criteria:	MRT, mathematics diagnostics; teacher recommendation; lack prerequisite skills	ITBS less than 30%ile; behind academically, not socially	Developmentally not ready for regular grade 1. Used Gesell identification criteria.
Number of Students:	17-20	14	14
Curriculum	Served in language arts and/or math. Students pulled for areas of need from other first grade classes in a.m. Upgrades kindergarten program in language-rich environment. Emphasis reading; strong teacher.	Gears down regular first grade curriculum and supplements; attend art, music, PE with others; strong teacher; program runs most of the day.	Regular first-grade curriculum plus Super Kids. Use Math Their Way, Addison-Wesley, plus Math cubes. Students stay in all day. Strong teacher.
Expectation	Retention or promotion possible	Retention or promotion possible	Retention probable, promotion possible

Special curriculum groupings generally involve mixing students across classes or grades. Children can thus receive appropriate instruction in each subject according to their needs and stay with their age-peers at least part of the day.

Research results. Compensatory programs are the only ones studied fairly thoroughly to date; these have been found to help many low achievers if well implemented. Informal research provides support for the other approaches; all hold promise. Aumsville, Oregon reports fewer behavior problems in their smaller transition classes and good progress once students enter the regular curriculum. More stringent research is needed on the success of these approaches. ORE plans to study this issue in 1987-88 based on approaches used this year--especially transition classrooms.

AISD had summer school programs for retainees for several years. However, students were not promoted because of participation. Short-term mastery learning results were very positive. However, the ITBS achievement of retainees who did and did not attend summer school was not significantly different by the following spring. It may be that a summer school program that led to promotion, with modified curriculum, structure, and length (longer school days or number of weeks) might be worth consideration.

SECONDARY

State law and local policy prescribe that students in grades 7 and 8 who fail to meet promotion requirements be retained or provided alternative programs. Secondary schools have been focusing on ways to help students avoid retention altogether (by reducing the number of F's earned) and to move on to the next grade as soon as possible. Tutoring, remediation, teacher training, equalization of grading standards across teachers, counseling, attendance checks--all could help students pass courses and avoid retention. Our focus here, however, will be on two specific alternatives designed to avoid retention (summer school) and shorten retention time (the Transitional Academic Program/TAP and Academic Incentive Program/AIP).

Summer School

Junior and senior high students who are short one or two courses for promotion can attend summer school to earn this credit (.5 per course). A check was done to see how many of those who failed to meet promotion criteria attended summer school and passed. This rate was compared to the promotion rate of those who did not attend summer school.

Junior high. Overall, 1,970 students had not met promotion criteria by May, 1986--400 attended summer school and 1,570 did not.

FIGURE 13
FALL, 1986 STATUS OF JUNIOR HIGH STUDENTS
NOT ELIGIBLE FOR PROMOTION AS OF SPRING, 1986

Summer School Status	Total Number	Promoted #	Promoted %	Retained #	Retained %	Left AISD #	Left AISD %
Attended	400	315	79%	40	10%	45	11%
Did not attend	1,570	300	19%	808	52%	462	30%

- Most of those attending summer school were promoted (315 or 79%), but some who did not attend were also promoted (300 or 19%).
- A larger percentage of those not attending summer school failed to re-enroll in AISD this fall (30% versus 11%).

Those promoted who did not attend summer school were probably promoted because of grade changes or unexcused absence appeals. It appears those with appeals pending may have been less likely to attend summer school.

Senior high. Overall, 1,350 students had not met promotion criteria by the end of 1985-86 -- 363 attended summer school and 987 did not.

FIGURE 14
FALL, 1986 STATUS OF SENIOR HIGH STUDENTS
NOT ELIGIBLE FOR PROMOTION AS OF SPRING, 1986

Summer School Status	Total Number	Promoted #	Promoted %	Retained #	Retained %	Left AISD #	Left AISD %
Attended	363*	189	52.1%	168	46.3%	6	1.7%
Did not attend	987	115	11.7%	848	85.9%	24	2.4%

- The success rate for high school was 52%, lower than the junior high rate of 79%.
- Of those not attending high school summer school, 12% were promoted--probably because of grade changes and attendance appeals.

Alternative Placement Programs

AISD has implemented two new programs at the secondary level this year designed to provide alternative instructional programs and faster progress and promotion for seventh and eighth graders.

The **Transitional Academic Program (TAP)** allows students to enroll in eighth or ninth grade courses while they repeat failed seventh or eighth grade courses. The program is available at Rice and Robbins secondary schools (grade 7-12). Students who remain at the regular junior highs do not have the opportunity to take the next grade's courses and therefore take more grade level courses than necessary. To be promoted, TAP students enrolled must meet the promotion standards for their grade. Frequent progress reports on performance are provided to students.

TAP is designed to be a one semester placement for seventh and eighth graders. Fall, 1986, enrollments and success rates are shown below.

FIGURE 15
SUCCESS OF FALL, 1986 TAP ENROLLEES

Status	Robbins #	Robbins %	Rice #	Rice %
Passed	103	89.6%	42	87.5%
Withdrew	10	8.7%	5	10.4%
Failed	2	1.7%	1	2.1%
Total Enrolled	115	100.0%	48	100.0%

Most students at both campuses (87%) were able to successfully complete the program and move on to ninth grade mid-year. Only three students who stayed the entire semester failed to successfully complete the program. Of those who withdrew, some returned to their home campus while others left AISD or the city. TAP enabled students to repeat one semester (or less since most took some higher grade level courses) rather than an entire year. In this way, students benefitted and AISD saved $253,750 (145 students times $1,750 each). This semester, 235 students (almost all new) are enrolled in TAP--40 at Rice and 135 at Robbins. Chapter 2 is funding two extra teachers at Rice for the program this semester. It will be interesting to watch the long-range success of the TAP program.

The Academic Incentive Program (AIP) is available to students who are two or more years below grade level in reading or mathematics or have a history of non-performance and failing grades for a majority of their courses. The program provides intensive remediation designed for rapid progress in English, reading, and mathematics. Time and subject requirements may be adjusted for other subjects. Promotion is based on a review of all grades earned.

AIP was first piloted in fall, 1986, at Martin with seventh graders. Of the 28 students involved, 25 successfully completed the program. One was unsuccessful and two withdrew. Overall, 89% were promoted. The program has been expanded to other junior high campuses this spring.

WHAT CONCLUSIONS CAN BE DRAWN?

Conclusions	Recommendations
Most students do not benefit from being retained.	Retain fewer students. Provide special help for those placed or retained--transitional classes, compensatory programs, tutoring, cross-grade or within-grade grouping, intense remediation, etc.
The number of students retained can be reduced.	Special programs such as summer school, transitional classes, TAP, and AIP could help to reduce the number retained.
The effectiveness of interventions need further study.	Interventions should be designed in a way that allows research on their effectiveness whenever possible.

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A complete bibliography of AISD's reports on retention and promotion is available from the Office of Research and Evaluation.

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RETENTION PROGRAM

Appendix A

ACHIEVEMENT ANALYSES

26

Achievement Analysis

Purpose

The Metropolitan Readiness Test (MRT) supplied information to respond to the following decision and evaluation question:

> **Decision Question D1:** Should schools be encouraged to retain more or fewer students?
>
> > **Evaluation Question D1-4:** Are students who attended AISD kindergarten less likely to be retained in first grade than those who did not but showed similar entry scores?
> >
> > **Evaluation Question D1-5:** What are the characteristics of first graders likely to be retained?

The Iowa Tests of Basic Skills (ITBS) and the Tests of Achievement and Proficiency (TAP) supplied information for the following questions:

> **Decision Question D1:** Should schools be encouraged to retain more or fewer students?
>
> > **Evaluation Question D1-6:** What achievement progress have first graders retained in 1981-82 made? Relative to the comparison group? The AISD average?

Procedure

Method

Kindergarten Participation (D1-4)

Attachment A-1 provides a flow chart describing the process. The basic steps taken were to:

1. Identify students active in AISD in 1985-86 as first graders for the first time and active in AISD in 1986-87 as first or second graders.
2. Obtain Metropolitan Readiness Test (MRT) percentile scores for 1985-86 on all students available;
3. Identify the first, second, third, and fourth quartile points based on frequency distributions of scores;
4. Group students with scores in first (≤ 36 = Group 1), second (36-59 = Group 2), third (60-81 = Group 3), and fourth quartile (82-99 = Group 4);

5. Check to see if students with MRT scores had attended an AISD kindergarten in 1984-85 or not (any in first grade were deleted); and

6. Use SAS PROC FREQ to determine the number and percent of students with and without AISD kindergarten now in grade 1 or 2 (as of October 20, 1986). Tables were run separately for each MRT group. A sample is shown in Attachment A-2.

7. Use PROC FREQ Chi-squares to determine whether there were significant differences in the percentage of students retained who scored in the first and second quartile on the MRT.

SAS program SA-JF061 was utilized. First grade retainees were skipped.

Five-Year Follow-Up (D1-6)

This study focused on the progress of 243 students repeating first grade in 1981-82 and matched low achievers. They were followed through 1985-86 in terms of subsequent promotion and achievement. Over the years, the findings of differences between retained students and a group of similar students not retained have been challenged by persons who believe that the fact that some students were retained and others promoted means that they are not similar in some key way. ORE does not discount this issue totally. However, analysis of retention patterns and rates across AISD schools indicates that retention decisions are made differently in different schools. Therefore, we conclude that students similar to the retainees on all factors other than school assignment do exist. In addition, the consistency and extent to which achievement differences are evident between retainees and similar nonretainees is convincing evidence to support the conclusions reported here. Research at the national level has also found the same patterns.

A number of steps were taken in the data analyses.

1. The tape which included the students recommended for retention in the spring of 1980-81 and their matches was retrieved from UT and examined. The tape, now labeled EDPRTN81, was transferred to AISD for analysis with the IBM 4341. AMATH 81 and AREAD 81 included the retainees and matches in mathematics and reading. The sample only included those actually retained in grade 1 in 1981-82 and tested in spring of 1981 and 1982 with the ITBS.

2. The original matched group for reading was utilized. Matched students were in grade 1 in 1980-81 and of the same sex, ethnicity, special education, and free lunch status. Age was within six months of the retainees. Pretest ITBS Reading Total scores (for spring, 1981) were matched as closely as possible on an alternating basis (closest higher score then closer lower score). More details can be found in ORE Pub. No. 81.36 (p. A-4).

3. The achievement sample included those from the original data set (with scores for spring, 1981) who had valid ITBS Reading Total and/or Mathematics Total scores for spring, 1986. Special education students were excluded. Thus, the number with test scores in each test area for 1981 and 1986 was the same, although there could be slight variations for intermediate years. The final sample in mathematics included 159 retainees and 178 matches. In reading, 158 retainees and 169 matches were included. Thus, some retainees and some matches lost their original "mate." However, mean GE scores for the retainees and matches remained very close, so all were kept. The Statistical Analysis System (SAS) PROC means procedure was utilized to generate mean grade equivalent scores plus other descriptive statistics on ITBS Reading Total and Mathematics Total scores for each spring (see Attachment A-3).

4. These students' current status was checked in terms of enrollment in AISD; promotion (based on current grade), special education, ethnicity, sex, and low-income status; and taking of the ITBS each year. SAS procedure "FREQ" was used to generate this data.

5. Scatter plots were run and checked for outliers. All cases were found acceptable for inclusion.

6. Regression analyses using the "SORESPOT" set of programs developed by AISD were run to see if differences in progress of the two groups of students retained and promoted in grade 1 in 1981-82 differed. If differences are found, the nature of the curvilinear or linear relationships is checked. SORESPOT was adapted to run using PROC GLM on SAS for a series of models. The correct model for each set of data (reading and mathematics) was then selected based on F tests of significance calculated from R-Square, Error Sum of Squares, and degrees of freedom for each model. The least restrictive model was selected.

7. Results were then graphed and compared to the national average.

Grade 1 Versus Later Retainees

The fact that 39% of the students in the matched group were later retained allowed an additional interesting comparison--the gains of low achievers retained in grade 1 versus those of low achievers retained in later grades. Instructional practitioners generally argue that those behind should be retained as soon as possible; some research supports this. This dataset allows a test of this position.

Those promoted at grade 1 were divided into two groups--those never retained subsequently and those later retained. Mean grade equivalent scores for Reading Total and Math Total on the ITBS were then calculated. SORESPOT was used to see if the gains of the two group varied significantly using a regression approach. Program SA-JF065 includes the relevant programs. (See Attachments A-4 and A-5.)

Likely First-Grade Retainees (D1-5)

Discriminant analyses were used to determine whether a pattern of characteristics could be identified that characterized first graders retained from those not retained. The SAS procedure DISCRIM was used. DISCRIM develops a discriminant function (classification criterion) based on a measure of generalized squared distance (RAO). This function was based on the pooled covariance matrix and takes prior probabilities of the groups into account. DISCRIM was performed on all first graders, retained and not, active in AISD at the end of 1983-84, followed by each ethnic group (Black, Hispanic and Anglo) separately. The classification criterion was then tested against the set of first grade retainees and nonretainees for 1984-85 to see whether it fit other groups. Program statements are shown with the results in Attachments A-6 through A-7. Programs SA-JF068 include all program statements.

The variables included in the analyses were:

1.	Retained (1) or promoted (0)	RETSTAT
2.	Metropolitan Readiness Test (MRT) Prereading Composite raw score	MRT
3.	Free or reduced lunch (1) or not (0)	LISTAT
4.	Sex Male = 1 Female = 0	SEX
5.	Ethnicity: =	ETHNIC
	Black = 1 0 = Other	BLACK
	Hispanic = 1 0 = Other	HISPANIC
	Anglo/Other = 1 0 = Other	ANGLO
6.	Number days in AISD for year	SCHDAYS
7.	ITBS Reading Total GE	ITBSR
8.	ITBS Math Total GE	ITBSM
9.	ITBS Language total GE	ITBSL
10.	Age in months	AGERND

Variables were coded separately by ethnicity (SEXH for example) to allow variables to enter the discriminant function in a different order by ethnicity.

PROCCORR was run before DISCRIM to see the correlation between retention status and the other variables. A decision was made to include all variables in the discriminant analysis based on the correlations found.

Results

Kindergarten Participation (E.Q. D1-4)

Prekindergarten programs in AISD and nationwide have been found to have positive short-term effects on student achievement. National studies have shown long-term benefits of pre-K programs on retention, special education, and discipline rates.

The question of whether participation in AISD's **kindergarten** program helped to prevent first-grade retention was investigated this year. The retention rates of AISD students in first grade for the first time in 1985-86 were examined for those who did and did not attend AISD's kindergarten program in 1984-85. A previous study of kindergarten participation showed that almost all AISD first graders have some kindergarten experience. Therefore, this comparison is mostly AISD kindergarten attenders versus attenders of other kindergarten programs. The Metropolitan Readiness Test (MRT), given in the fall of first grade, was used to control for differences in achievement levels. The retention rates of students scoring in each quartile were compared.

Figure A-1 illustrates the percentage and number of students with and without AISD kindergarten who were retained (by MRT quartile). Analyses revealed that:

- There was no significant difference in the percentage of those attending and not attending AISD kindergarten who were retained.
- Most of those retained as first graders scored in the first quartile on the MRT (regardless of kindergarten participation). Almost all others retained scored in the second quartile on the MRT.

Thus, participation in AISD's kindergarten program did not reduce the chances of retention. Again, almost all of those students who did not attend an AISD kindergarten did attend kindergarten elsewhere. Some type of school experience at this grade level may indeed be beneficial.

FIGURE A-1
RETENTION RATES BY PARTICIPATION IN AISD KINDERGARTEN

MRT Quartile	AISD Kindergarten No. Retained	AISD Kindergarten Total in Gp.	No AISD Kindergarten No. Retained	No AISD Kindergarten Total in Gp.
1	311	754	42	90
2	71	746	3	78
3	5	673	1	107
4	0	651	1	97
Total Retained	387 (13.7%) (13.7%)	2,824	47 (12.6%)	372

Five-Year Achievement Follow-Up (E.Q. D1-6)

Promotion status. The status of the 243 students in each of the reading groups (retained and not) was checked as of February, 1987. About three fourths of each group were still enrolled. If students were not retained after grade 1, the retainees would now be in grades 6 (for those retained) and 7 (for those promoted). In reality, 12.5% of the retainees were retained subsequently (one was retained twice); 38.6% of the matched group was retained subsequently (two were retained twice).

FIGURE A-2
1986-87 GRADE ASSIGNMENT OF STUDENTS
RETAINED IN 1980-81 AND THEIR MATCHES

Grade in 1986-87	Retainees #	Retainees %	Matches #	Matches %
4	1	.5%		
5	22	12.0%	2	1.1%
6	156	85.2%	69	37.5%
7	4	2.2%	113	61.4%
Total	183	100.0%	184	100.0%

Special education and other characteristics. Figure A-3 shows other characteristics of the two groups by February, 1987. Differences in the two groups did emerge over the five-year period. Students retained in 1980-81 did appear more likely to be subsequently placed in special education programs (perhaps because retention had already been tried). Matched students were more likely to be subsequently retained.

FIGURE A-3
CURRENT (FEBRUARY, 1987) STATUS OF LOW ACHIEVERS
RETAINED AND PROMOTED AS FIRST GRADERS IN 1980-81

CHARACTERISTICS	RETAINED %	PROMOTED %
Special Education	21.3%	10.3%
Ethnicity		
Black	33.9%	39.1%
Hispanic	55.2%	44.0%
Anglo/Other	10.9%	17.9%
Sex		
Male	58.5%	59.2%
Female	41.5%	40.8%
Low Income	73.0%	60.0%

Achievement status. The original groups of retainees and matches, which were matched separately for reading and mathematics, were used as a starting point. To be included in the achievement sample, students had to have valid ITBS Reading Total and/or Mathematics Total scores for spring, 1986. Of the original groups, 186 first grade retainees and 189 promoted low achievers met these criteria. Characteristics of the two groups were similar to those discussed above except that special education students were excluded. Pretest scores in reading and mathematics for the two groups were found to be very close.

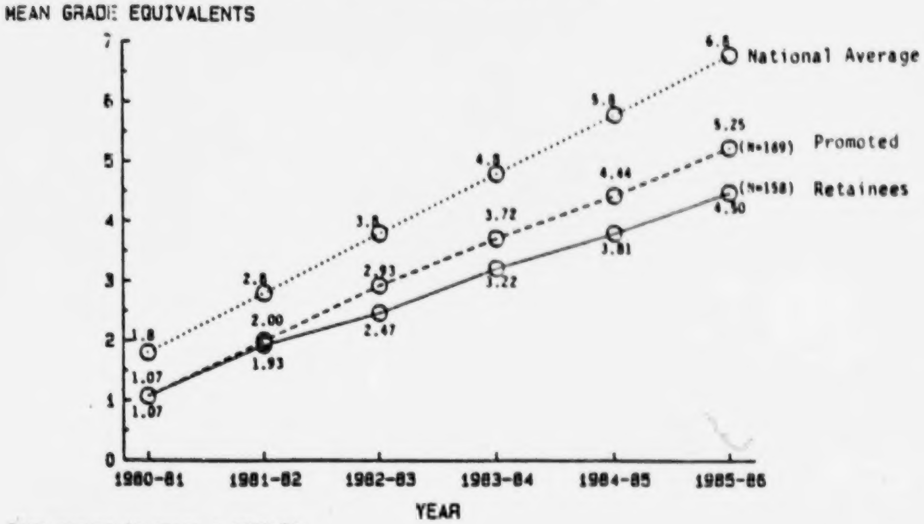
Mean scores were determined for each year for the two groups and compared to the national average (see Figures 8 and 9). Regression analyses were also run to compare the 1985-86 achievement of the two groups in reading and mathematics. Results revealed that:

- In reading, retainees gained .86 GE during the repeated year but gained less thereafter. In mathematics, retainees gained .63 GE during the repeated year with generally slightly greater gains thereafter. Growth rates were not high enough in either area to keep students up to the class average--even with younger classmates.

- In both reading and mathematics, the students promoted in first grade were found to show significantly (p .01) higher scores than those retained by 1985-86. Differences in both areas were about .75 of a grade equivalent (GE) year by 1985-86.

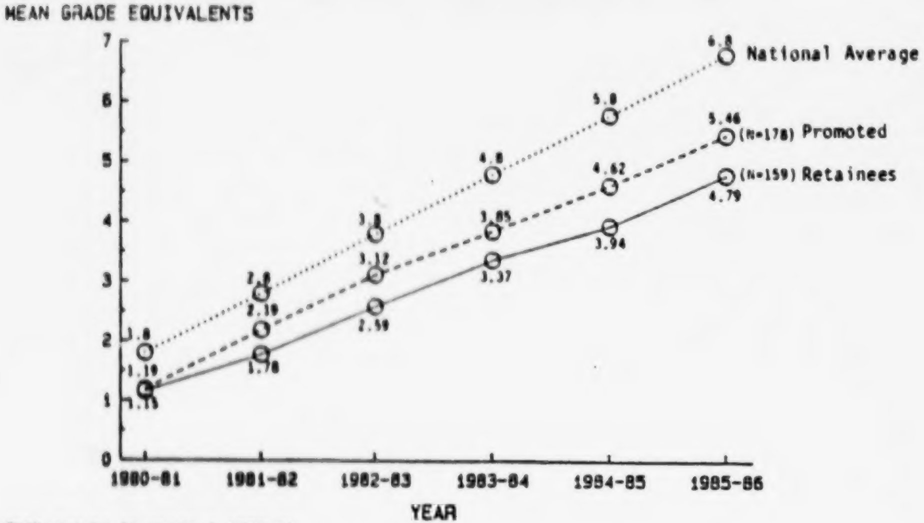
- Both retainees and promoted low achievers still scored well below the national average for their age (with retainees further behind) and their grade (with both groups about 1.4 years below average).

FIGURE A-4
ITBS READING TOTAL SCORES OF FIRST GRADERS REPEATING A GRADE IN 1981-82 AND MATCHED PROMOTED LOW ACHIEVERS



Both groups in grade 1 1980-81.
Retainees in grade 1 1981-82;
matches in grade 2.

FIGURE A-5
ITBS MATHEMATICS TOTAL SCORES OF FIRST GRADERS REPEATING A GRADE IN 1981-82 AND MATCHED PROMOTED LOW ACHIEVERS



Both groups in grade 1 1980-81.
Retainees in grade 1 1981-82;
matches in grade 2.

- In reading, both groups appeared to gain about .9 GE year in 1981-82 regardless of whether they were retained in first grade or promoted. Retainees' average GE gains were smaller than those of promoted low achievers in subsequent years. The difference between groups therefore broadened.
- In mathematics, those retained in grade 1 fell behind promoted students in 1981-82 (their retention year) and stayed behind subsequently. The gap again broadened slightly across the years.

These results suggest that retention does not meet its goal of helping students catch up to grade level and staying there. Retainees' growth rates are not improved in the long run so they fall behind their younger classmates. Those promoted showed better growth in both reading and mathematics than those retained in first grade. This is most dramatically shown for mathematics but also appears in reading after the retention year. Both groups seem to occupy a low position relative to their classmates after first grade. The level of challenge in the material presented to each group may be a crucial variable. Factors such as teacher and student expectations and student learning strategies may also play a part. **This research supports the position that placement with special help is a better alternative for most low achievers than is retention.**

NOTE: It was interesting to see the significant differences in favor of those promoted at grade 1 in spite of the fact that 38.6% of the matched groups were later retained (compared to 12.5% in the retained group). It is not known at this time whether those retained later follow the same pattern of achievement as those retained at grade 1. When time allows, we hope to look at the achievement of those in the matched groups later retained compared to the other matched students.

Achievement followup--Retained in grade 1 versus later grades. Mean grade equivalent scores and other descriptive statistics for low achievers retained in grade 1, retained in later grades, and never retained are shown in Attachment A-4. The chart below shows the pattern of GE gains in reading and mathematics.

ITBS GE ACHIEVEMENT SCORES -- 1ST GRADE LOW ACHIEVERS

READING	Retained Grade 1 N=158	Retained Later N=63	Never Retained N=106
1980-81	1.07	1.01	1.10
1981-82	1.93	1.71	2.18
1982-83	2.47	2.65	3.10
1983-84	3.22	3.31	3.96
1984-85	3.81	3.90	4.76
1985-86	4.50	4.63	5.62
MATH	N=159	N=64	N=114
1980-81	1.15	1.06	1.26
1981-82	1.78	2.00	2.29
1982-83	2.59	2.77	3.32
1983-84	3.37	3.48	4.04
1984-85	3.94	4.12	4.88
1985-86	4.79	4.84	5.80

Regression analyses revealed no significant differences in the growth trends of those retained in grade 1 versus later grades. See Attachment A-5 for F test values.

Results

Likely First-Grade Retainees (D1-5)

Attachment A-6 includes results for all first graders in the 1983-84 and 1984-85 groups. Attachment A-7 includes results by ethnicity.

Overall, the SAS discriminant function predicted membership (retained versus not) with 89.6% accuracy for the 1983-84 group. When the equation was applied to the 1984-85 group, 90.1% accuracy of prediction was obtained (computer pages 31 and 40 of Attachment A-6). In all cases retained students were more likely to be predicted to be promoted than the reverse. The equations accurately predicted retention within ethnicity as follows:

	1983-84	1984-85
Black	86.74%	86.08%
Hispanic	86.19%	86.23%
Anglo/Other	94.18%	93.97%

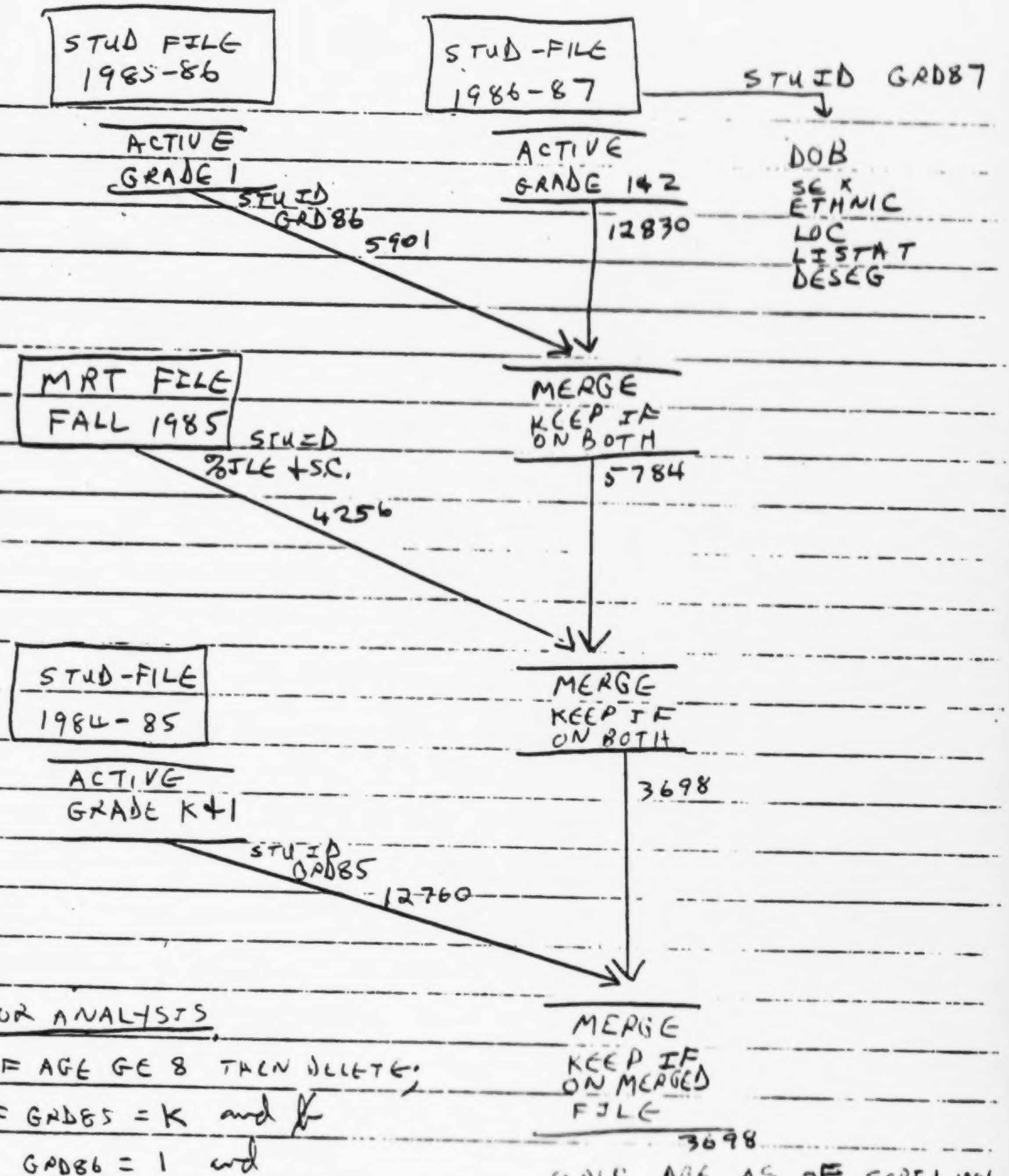
Thus, within ethnic groups, factors besides those included in the equation seem to be somewhat more important for Black and Hispanic students.

The SAS DISCRIM package does not provide beta weights but it does provide discriminant functions. These can be used to look at the strength of various predictors but greater caution must be used in interpretation. All variables entered the equation. The strongest predictors (based on the 1983-84 group) appeared to be ethnicity, age, days attending school, and low income status. Ethnicity and low income status are positively correlated. It is not possible to determine to what extent discrimination (intentional or unintentional) may be involved in the decision-making process. Ethnicity and income may mask other relevant factors such as language proficiency, completion and mastery of school work attitude toward school, parent involvement and education, and expectations of teachers, parents, and students. Of course, schools must guard against making decisions for one ethnic group on a different basis than for others and must try to provide extra help to all those in need.

Within ethnicity, age, and attendance appeared strong for all groups followed by low-income status. The age factor (younger students are more likely to be retained) has been noted in other studies as well. Maturity is a related factor. Schools can work to give younger students extra help, especially if they appear to be having difficulty. Also, schools must be cautious in retaining students based on "maturity" or age alone, since students mature at different rates and may "blossom" over the summer months. Other factors, such as academic achievement, should also indicate a need for retention.

The importance of encouraging student attendance is also emphasized by these results. Obviously, students miss important instructional information if they are not at school. Emphasizing this to parents, and following up on those who frequently miss school, is of vital importance.

SA-JF061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DESEG
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ACTIVE GRADE 1&2
12830
MERGE KEEP IF ON BOTH
5784
MRT FILE FALL 1985
STUID %ILE +SC.
4256
STUD-FILE 1984-85
ACTIVE GRADE K+1
STUID GRD85
12760
MERGE KEEP IF ON BOTH
3698
MERGE KEEP IF ON MERGED FILE
3698

FOR ANALYSIS

IF AGE GE 8 THEN DELETE;

IF GRD85 = K and

GRD86 = 1 and

GRD87 = 1 or 2;

CALC AGE AS OF SEPT 1, 1986

PROC FREQ;

LOC DESEG GRD85

SEX ETHNIC AGE GRD86 GRD87

LISTAT MATHRS READILE BATTILE

```
1        S A S   L O G    VSE SAS 82.4         VSE 3.1 JOB LVISAS                          16:15 FRIDAY, OCTOBER 31, 1986

NOTE: THE JOB LVISAS HAS BEEN RUN UNDER RELEASE 82.4 OF SAS
      AT AUSTIN INDEPENDENT SCHOOL DISTRICT (01986001).

NOTE: CPUID   VERSION = FF  SERIAL = 013553  MODEL = 4341 .

NOTE: NO OPTIONS SPECIFIED.

1                                                                               00000120
2          OPTIONS ERRORS = 0;                                                  00000130
3                                                                               00000140
4          TITLE1 AUSTIN INDEPENDENT SCHOOL DISTRICT            NANCY SPECIAL    X; 00000150
5          TITLE2 OFFICE OF RESEARCH AND EVALUATION                  SA-JF051    :  00000160
6                                                                               00000170
7          DATA FRYLANG;                                                        00000180
8              INPUT       AISDR      $                                         00000190
9                          PROMOTE    $                                         00000200
10                         COUNT;                                               00000210
11                         CARDS;                                               00000220

NOTE: DATA SET USER010.FRYLANG HAS 4 OBSERVATIONS AND 3 VARIABLES. 384 OBS/TRK.
NOTE: THE DATA STATEMENT USED 4.62 SECONDS AND 322K.

16         ;                                                                    00000270
17         TITLE3 1ST QUARTILE;                                                 00000280
18         PROC FREQ;                                                           00000290
19             WEIGHT COUNT;                                                    00000300
20             TABLES  AISDR*PROMOTE  /  CHISQ  NOCOL  NOPERCENT;               00000310
21                                                                              00000320
22                                                                              00000330
```

APPENDIX A
14

Attachment A-2

```
                    AUSTIN INDEPENDENT SCHOOL DISTRICT                    RETENTION                        1
                    OFFICE OF RESEARCH AND EVALUATION                SA-JF065 9999 X
                    FREQUENCIES AND PRINTOUT OF UT FILE ***** AMATHB1 *****      X
                    FIRST GRADERS AND THEIR MATCHES                              X
                    GROUP 1 = RETAINEES    GROUP 2 = MATCHE                      X
                    AND WERE STILL ACTIVE IN MAY 1986                            X
                         ******* THEY ALSO HAD TEST SCORES IN 1986  *******
```

Use for math only

```
                                                                                 15:16 TUESDAY, FEBRUARY 10, 1987
VARIABLE       N        MEAN      STANDARD      MINIMUM       MAXIMUM    STD ERROR          SUM       VARIANCE         C.V.
                                  DEVIATION       VALUE         VALUE     OF MEAN

--------------------------------------------------------- GROUP=1 -------------------------------------------------------------

READGE       159   1.03207547   0.47217793   0.00000000   2.30000000   0.03744615   164.1000000   0.22295199       45.750
READ2        153   1.93267974   0.60424268   0.20000000   3.80000000   0.04885013   295.7000000   0.36510922       31.265
READ3        147   2.46190476   0.78017677   1.00000000   4.70000000   0.06434790   361.9000000   0.60867580       31.690
READ4        149   3.18187919   0.88615886   1.20000000   5.70000000   0.07259696   474.1000000   0.78527753       27.850
READ5        145   3.77448276   1.02012930   1.70000000   7.10000000   0.08471713   547.3000000   1.04066379       27.027
READ6        155   4.49741935   1.18639191   2.10000000   8.30000000   0.09529329   697.1000000   1.40752576       26.379
MATHGE       159   1.15283019   0.41807445   0.10000000   2.40000000   0.03315546   183.3000000   0.17478624       36.265
MATH2        159   1.78113208   0.47775448   0.80000000   3.30000000   0.03788839   283.2000000   0.22824934       26.823
MATH3        148   2.58851351   0.57279879   1.50000000   4.60000000   0.04708377   383.1000000   0.32809846       22.128
MATH4        149   3.37248322   0.74306333   1.70000000   5.90000000   0.06087412   502.5000000   0.55214312       22.033
MATH5        146   3.94452055   0.90971999   2.10000000   6.30000000   0.07528896   575.9000000   0.82759046       23.063
MATH6        159   4.78742138   1.01143726   2.50000000   7.70000000   0.08021219   761.2000000   1.02300533       21.127

--------------------------------------------------------- GROUP=2 -------------------------------------------------------------
```

Matched low achievers

```
READGE       178   1.40280899   0.65323444   0.00000000   3.40000000   0.04896199   249.7000000   0.42671523       46.566
READ2        174   2.18908046   0.71365401   0.90000000   4.00000000   0.05410197   380.9000000   0.50930204       32.601
READ3        173   3.05433526   0.81785755   1.30000000   5.00000000   0.06218056   528.4000000   0.66889098       26.777
READ4        173   3.80462428   0.92966705   1.90000000   6.10000000   0.07068128   658.2000000   0.86428082       24.435
READ5        171   4.56315789   1.06477806   2.20000000   7.30000000   0.08142561   780.3000000   1.13375232       23.334
READ6        174   5.35459770   1.18148364   2.40000000   7.90000000   0.08956804   931.7000000   1.39590359       22.065
MATHGE       178   1.18988764   0.33176295   0.60000000   2.50000000   0.02486668   211.8000000   0.11006665       27.882
MATH2        178   2.18707865   0.46334744   1.00000000   3.70000000   0.03472936   389.3000000   0.21469085       21.186
MATH3        173   3.12080925   0.67222767   1.70000000   5.30000000   0.05110852   539.9000000   0.45189004       21.540
MATH4        172   3.84709302   0.72405836   2.30000000   6.00000000   0.05520893   661.7000000   0.52426051       18.821
MATH5        172   4.61627907   0.88037213   2.50000000   6.80000000   0.06712775   794.0000000   0.77505508       19.071
MATH6        178   5.45561798   1.05036819   3.40000000   8.70000000   0.07872842   971.1000000   1.10327334       19.253
NOTE: THE PROCEDURE MEANS USED 10.32 SECONDS AND 388K AND PRINTED PAGE 1.

24         PROC DELETE  DATA = FRYRIN99;                                        00000330
25                                                                              00000340

NOTE: THE PROCEDURE DELETE USED 2.52 SECONDS AND 336K.
NOTE: SAS USED 388K MEMORY.

NOTE: SAS INSTITUTE INC.
      SAS CIRCLE
      PO BOX 8000
      CARY, N.C.  27511-8000
```

Attachment A-3
(Page 1 of 2)

Retainees
Versus
Similar
Low Achievers --
Math

42

```
                         FIRST GRADERS AND THEIR MATCHES                          *
                         GROUP 1 - RETAINEES     GROUP 2 - MATCHES                *
                         AND WERE STILL ACTIVE IN MAY 1986                        *
                                                                                         9:57 FRIDAY, JULY 17, 1987

VARIABLE       N        MEAN        STANDARD      MINIMUM       MAXIMUM     STD ERROR          SUM        VARIANCE         C.V.
                                    DEVIATION      VALUE         VALUE       OF MEAN

------------------------------------------------------------ GROUP-1 ------------------------------------------------------------

READGE       158    1.07151899    0.43772600    0.10000000    2.30000000    0.03482361    169.3000000    0.19160465       40.851
READ2        158    1.93164557    0.60191717   -0.20000000    3.80000000    0.04788596    305.2000000    0.36230428       31.161
READ3        150    2.47133333    0.76275170    1.00000000    4.70000000    0.06227842    370.7000000    0.58179016       30.864
READ4        150    3.22200000    0.84859695    1.40000000    5.70000000    0.06928765    483.3000000    0.72011678       26.338
READ5        147    3.80748299    1.00649183    1.80000000    7.10000000    0.08301605    559.7000000    1.01302581       26.435
READ6        158    4.50063291    1.17973855    2.10000000    8.30000000    0.09385496    711.1000000    1.39178304       26.213
LANG2        157    2.07452229    0.89771108    0.00000000    4.80000000    0.07164514    325.7000000    0.80588519       43.273
LANG3        148    2.63648649    0.99735355    0.10000000    5.90000000    0.08198196    390.2000000    0.99471410       37.829
LANG4        150    3.66533333    0.86101132    1.60000000    5.80000000    0.07030128    549.8000000    0.74134049       23.491
LANG5        146    4.15068493    1.08285998    1.40000000    7.50000000    0.08961813    606.0000000    1.17258573       26.089
LANG6        157    4.85732484    1.30547191    2.10000000    8.50000000    0.10418800    762.6000000    1.70425690       26.876
MATHGE       158    1.10886076    0.45893532    0.00000000    2.40000000    0.03651093    175.2000000    0.21062162       41.388
MATH2        155    1.78387097    0.47964866    0.80000000    3.30000000    0.03852631    276.5000000    0.23006284       26.888
MATH3        150    2.59000000    0.56790561    1.50000000    4.60000000    0.04636930    388.5000000    0.32251678       21.927
MATH4        150    3.37466667    0.70417610    2.00000000    5.90000000    0.05749574    506.2000000    0.49586398       20.867
MATH5        147    3.96870748    0.88980548    2.10000000    6.30000000    0.07338992    583.4000000    0.79175380       22.421
MATH6        158    4.80696203    0.99649814    2.50000000    7.70000000    0.07927714    759.5000000    0.99300855       20.730

------------------------------------------------------------ GROUP-2 ------------------------------------------------------------

READGE       169    1.06568047    0.41633997    0.00000000    2.30000000    0.03202615    180.1000000    0.17333897       39.068
READ2        169    2.00295858    0.62862530    0.70000000    3.60000000    0.04835579    338.5000000    0.39516977       31.385
READ3        163    2.93190184    0.69404037    1.40000000    4.90000000    0.05436144    477.9000000    0.48169204       23.672
READ4        162    3.72160494    0.90757469    1.90000000    6.50000000    0.07130580    602.9000000    0.82369182       24.387
READ5        163    4.43742331    1.03512902    2.40000000    7.60000000    0.08107756    723.3000000    1.07149209       23.327
READ6        169    5.25325444    1.13442011    2.60000000    8.60000000    0.08726309    887.8000000    1.28690899       21.595
LANG2        168    2.26369048    0.80510539    0.30000000    5.20000000    0.06211523    380.3000000    0.64819468       35.566
LANG3        163    3.33067485    0.95493076    0.90000000    5.60000000    0.07479595    542.9000000    0.91189275       28.671
LANG4        162    4.21728395    0.97640361    1.90000000    6.80000000    0.07671351    683.2000000    0.95336401       23.152
LANG5        163    4.81349693    1.15867716    1.00000000    8.60000000    0.09075460    784.6000000    1.34253276       24.071
LANG6        168    5.62380952    1.32941111    2.30000000    9.10000000    0.10256629    944.8000000    1.76733390       23.639
MATHGE       169    1.41715976    0.43094744    0.00000000    2.60000000    0.03314980    239.5000000    0.18571569       30.409
MATH2        168    2.34047619    0.52245821    1.00000000    4.10000000    0.04030853    393.2000000    0.27296265       22.323
MATH3        163    3.17116564    0.70261621    1.70000000    5.00000000    0.05503315    516.9000000    0.49366962       22.156
MATH4        162    3.97592593    0.82776400    2.30000000    6.10000000    0.06503528    644.1000000    0.68519324       20.819
MATH5        162    4.66728395    0.96316186    2.70000000    7.50000000    0.07567314    756.1000000    0.92768078       20.636
MATH6        169    5.52603550    1.03999040    3.20000000    8.60000000    0.07999926    933.9000000    1.08158002       18.820
NOTE: THE PROCEDURE MEANS USED 1.42 SECONDS AND 350K AND PRINTED PAGE 1.

140          DATA FRYRIN1;                                                                   00001660
141              SET FRYRIN2;                                                                00001670
142              IF GROUP = '2';                                                             00001680
143              IF GRADES86 = '06';                                                         00001690
144          FILTER MATCHES WHO WERE NOT RETAINED LATER;                                     00001700

NOTE: DATA SET USERDLD.FRYRIN1 HAS 106 OBSERVATIONS AND 29 VARIABLES. 42 OBS/TRK.
NOTE: THE DATA STATEMENT USED 1.08 SECONDS AND 306K.

145          PROC MEANS;                                                                     00001710
146                VAR  READGE  READ2    READ3    READ4    READ5    READ6                    00001720
147                             LANG2    LANG3    LANG4    LANG5    LANG6                    00001730
148                    MATHGE   MATH2    MATH3    MATH4    MATH5    MATH6;                   00001740
149                                                                                          00001750
*      S A S   L O G    VSE SAS 82.4        VSE 1.1 JOB EVISAS                                9:57 FRIDAY, JULY 17, 1987
```

use for reading only

Obtained Values

Retained
in Grade 1
Versus Similar
Achievers
(1st Retainees)
(Reading)

Use for Reading Only

```
AUSTIN INDEPENDENT SCHOOL DISTRICT                              RETENTION
OFFICE OF RESEARCH AND EVALUATION                          SA-JF065 0401 X
FREQUENCIES AND PRINTOUT OF UT FILE AREA081                               X
FIRST GRADERS AND THEIR MATCHES                                           X
GROUP 1 = RETAINEES     GROUP 2 = MATCHES                                 X
AND WERE STILL ACTIVE IN MAY 1986                                         X
                                                                      9:57 FRIDAY, JULY 17, 1987   2

                                   MATCHES WHO WERE NOT RETAINED LATER

VARIABLE     N       MEAN       STANDARD      MINIMUM       MAXIMUM     STD ERROR         SUM         VARIANCE        C.V.
                                DEVIATION      VALUE         VALUE       OF MEAN

READGE     106   1.09811321   0.41929218   0.00000000   2.30000000   0.04072526  116.4000000   0.17580593      38.183
READ2      106   2.17735849   0.59237746   0.70000000   3.60000000   0.05753678  230.8000000   0.35091105      27.206
READ3      102   3.10098039   0.72405556   1.40000000   4.90000000   0.07169218  316.3000000   0.52425646      23.349
READ4      102   3.96176471   0.87076206   2.30000000   6.50000000   0.08621829  404.1000000   0.75822656      21.979
READ5      102   4.75882353   0.98547400   2.50000000   7.60000000   0.09757647  485.4000000   0.97115900      20.708
READ6      106   5.62452830   0.99635634   3.10000000   8.60000000   0.09677468  596.2000000   0.99272597      17.714
LANG2      105   2.42476190   0.81285122   0.90000000   5.20000000   0.07932616  254.6000000   0.66072711      33.523
LANG3      102   3.56764706   0.91847503   1.20000000   5.60000000   0.09094258  363.9000000   0.84359639      25.745
LANG4      101   4.43564356   0.98362433   1.90000000   6.80000000   0.09787428  448.0000000   0.96751683      22.175
LANG5      102   5.12843137   1.15983760   2.10000000   8.60000000   0.11484103  523.1000000   1.34522326      22.616
LANG6      106   6.04528302   1.17003314   2.60000000   9.10000000   0.11364366  640.8000000   1.36897756      19.354
MATHGE     106   1.47547170   0.41053074   0.00000000   2.60000000   0.03987427  156.4000000   0.16853549      27.824
MATH2      106   2.45754717   0.52061285   1.60000000   4.00000000   0.05056639  260.5000000   0.27103774      21.184
MATH3      102   3.37156863   0.72376593   1.80000000   5.00000000   0.07166351  343.9000000   0.52383712      21.467
MATH4      102   4.23529412   0.82397816   2.70000000   6.10000000   0.08158600  432.0000000   0.67894001      19.455
MATH5      101   4.94950495   0.96391117   2.70000000   7.50000000   0.09591275  499.9000000   0.92912475      19.475
MATH6      106   5.87452830   0.96718160   4.00000000   8.60000000   0.09394098  622.7000000   0.93544025      16.464
NOTE: THE PROCEDURE MEANS USED 2.84 SECONDS AND 350K AND PRINTED PAGE 2.

150          DATA FRYRIN3;                                                          00001760
151             SET FRYRIN2;                                                        00001770
152             IF GROUP = '2';                                                     00001780
153             IF GRADES86 LT '06';                                                00001790
154          TITLE8 MATCHES WHO WERE     RETAINED LATER;                            00001800

NOTE: DATA SET USER010.FRYRIN3 HAS 63 OBSERVATIONS AND 29 VARIABLES. 42 OBS/TRK.
NOTE: THE DATA STATEMENT USED 4.16 SECONDS AND 306K.

155          PROC MEANS;                                                            00001810
156             VAR  READGE  READ2    READ3    READ4    READ5    READ6              00001820
157                          LANG2    LANG3    LANG4    LANG5    LANG6              00001830
158                  MATHGE  MATH2    MATH3    MATH4    MATH5    MATH6;             00001840
159                                                                                 00001850
160                                                                                 00001860
```

(See Att. A-3 for information on gr. 1 retainees)

86.30

```
                              AUSTIN INDEPENDENT SCHOOL DISTRICT                  RETENTION                   3
                              OFFICE OF RESEARCH AND EVALUATION            SA-JF065 0401 X
                              FREQUENCIES AND PRINTOUT OF UT FILE AREADBI               X
                              FIRST GRADERS AND THEIR MATCHES                           X
                              GROUP 1 = RETAINEES     GROUP 2 = MATCHES                 X
                              AND WERE STILL ACTIVE IN MAY 1986                         X
                                                                                            9:57 FRIDAY, JULY 17, 1987
                                          MATCHES WHO WERE     RETAINED LATER

VARIABLE        N        MEAN        STANDARD      MINIMUM       MAXIMUM    STD ERROR          SUM       VARIANCE          C.V.
                                     DEVIATION       VALUE         VALUE    OF MEAN

READGE         63   1.01111111   0.40881856   0.20000000   2.20000000   0.05150630   63.7000000   0.16713262        40.433
READ2          63   1.70952381   0.58052098   1.00000000   3.50000000   0.07313877  107.7000000   0.33700461        33.958
READ3          61   2.64918033   0.53684975   1.70000000   4.00000000   0.06873657  161.6000000   0.28820765        20.265
READ4          60   3.31333333   0.82492253   1.90000000   5.30000000   0.10649704  198.8000000   0.68049718        24.897
READ5          61   3.90000000   0.88825672   2.40000000   6.60000000   0.11372962  237.9000000   0.78900000        22.776
READ6          63   4.62857143   1.08336819   2.60000000   7.40000000   0.13649156  291.6000000   1.17368664        23.406
LANG2          63   1.99523810   0.72142971   0.30000000   4.20000000   0.09089160  125.7000000   0.52046083        36.158
LANG3          61   2.93442623   0.88710865   0.90000000   5.20000000   0.11358262  179.0000000   0.78696175        30.231
LANG4          61   3.85573770   0.85586693   2.10000000   5.90000000   0.10958253  235.2000000   0.73250820        22.197
LANG5          61   4.28688525   0.95384754   1.80000000   6.50000000   0.12212766  261.5000000   0.90982514        22.250
LANG6          62   4.90322581   1.28279507   2.30000000   8.10000000   0.16291514  304.0000000   1.64556319        26.162
MATHGE         63   1.31904762   0.44967987   0.00000000   2.40000000   0.05665434   83.1000000   0.20221158        34.091
MATH2          62   2.14032258   0.46499063   1.00000000   4.10000000   0.05905387  132.7000000   0.21621629        21.725
MATH3          61   2.83606557   0.51834120   1.70000000   4.20000000   0.06636679  173.0000000   0.26867760        18.277
MATH4          60   3.53500000   0.62729578   2.30000000   5.30000000   0.08098354  212.1000000   0.39350000        17.745
MATH5          61   4.20000000   0.76463499   2.70000000   6.20000000   0.09790148  256.2000000   0.58466667        18.206
MATH6          63   4.93968254   0.88855440   3.20000000   7.20000000   0.11194733  311.2000000   0.78952893        17.988
NOTE: THE PROCEDURE MEANS USED 2.86 SECONDS AND 350K AND PRINTED PAGE 3.

161         PROC DELETE DATA=FRYRIN2   FRYRIN3;                                    00001870

NOTE: THE PROCEDURE DELETE USED 2.02 SECONDS AND 284K.
NOTE: SAS USED 350K MEMORY.

NOTE: SAS INSTITUTE INC.
      SAS CIRCLE
      PO BOX 8000
      CARY, N.C.  27511-8000
```

APPENDIX A

Attachment A-4
(Page 2 of 4)

Math only

```
                         AUSTIN INDEPENDENT SCHOOL DISTRICT                            RETENTION                          2
                         OFFICE OF RESEARCH AND EVALUATION                        SA-JF065 0401 X
                         FREQUENCIES AND PRINTOUT OF UT FILE AMATH01                            X
                         FIRST GRADERS AND THEIR MATCHES                                        X
                         GROUP 1 = RETAINEES     GROUP 2 = MATCHES                              X
                         AND WERE STILL ACTIVE IN MAY 1986                                      X
                                                                                      12:15 FRIDAY, JULY 17, 1987
                                          MATCHES WHO WERE NOT RETAINED LATER

VARIABLE         N         MEAN        STANDARD        MINIMUM        MAXIMUM     STD ERROR          SUM        VARIANCE          C.V.
                                       DEVIATION        VALUE          VALUE       OF MEAN

READGE         114    1.55140351    0.64210781     0.00000000     3.40000000    0.06013891   178.0000000    0.41230244        41.124
READ2          113    2.40000000    0.68478359     0.90000000     4.00000000    0.06441902   271.2000000    0.46892857        28.533
READ3          111    3.24864865    0.79713862     1.40000000     5.00000000    0.07566105   360.6000000    0.6[illegible]42996        24.538
READ4          113    3.99823009    0.89612084     2.30000000     6.10000000    0.08429996   451.8000000    0.80303255        22.413
READ5          113    4.81415929    1.03206340     2.20000000     7.30000000    0.09708836   544.0000000    1.06515487        21.438
READ6          114    5.67543860    1.10786100     2.90000000     7.90000000    0.10376069   647.0000000    1.22735600        19.520
LANG2          112    2.72857143    1.09630243    -0.30000000     5.90000000    0.10359084   305.6000000    1.20187902        40.179
LANG3          111    3.79918919    0.92749431     1.90000000     5.90000000    0.08803386   420.6000000    0.86024570        24.477
LANG4          113    4.54424779    0.93693441     2.00000000     7.50000000    0.08813937   513.5000000    0.87784608        20.618
LANG5          113    5.27964602    1.19434376     1.80000000     7.90000000    0.11235441   596.6000000    1.42645702        22.622
LANG6          114    6.25175439    1.28146987     2.80000000     9.30000000    0.12002065   712.7000000    1.64216504        20.498
MATHGE         114    1.26052632    0.34219966     0.60000000     2.50000000    0.03204993   143.7000000    0.11710061        27.147
MATH2          114    2.29210526    0.47988655     1.00000000     3.70000000    0.04494549   261.3000000    0.23029110        20.936
MATH3          111    3.31801802    0.68598942     2.10000000     5.30000000    0.06511123   368.3000000    0.47058149        20.675
MATH4          113    4.04070796    0.73795533     2.60000000     6.00000000    0.06942100   456.6000000    0.54457807        18.263
MATH5          113    4.87610619    0.86285183     2.70000000     6.80000000    0.08117027   551.0000000    0.74451327        17.696
MATH6          114    5.79912281    1.02590307     1.70000000     8.70000000    0.09608463   661.1000000    1.05247710        17.691
NOTE: THE PROCEDURE MEANS USED 2.79 SECONDS AND 350K AND PRINTED PAGE 2.

150          DATA FRYRTN3;                                                                      00001760
151               SET FRYRTA2;                                                                  00001770
152               IF GROUP = '2';                                                               00001780
153               IF GRADES86 LT '06';                                                          00001790
154          TITLE8 MATCHES WHO WERE      RETAINED LATER;                                       00001800

NOTE: DATA SET USER010.FRYRTN3 HAS 64 OBSERVATIONS AND 29 VARIABLES. 42 OBS/TRK.
NOTE: THE DATA STATEMENT USED 4.85 SECONDS AND 306K.

155          PROC MEANS;                                                                        00001810
156               VAR  READGE  READ2     READ3     READ4     READ5     READ6                   00001820
157                            LANG2     LANG3     LANG4     LANG5     LANG6                   00001830
158                    MATHGE  MATH2     MATH3     MATH4     MATH5     MATH6;                  00001840
159                                                                                             00001850
160                                                                                             00001860
```

86.30

APPENDIX A
19

Attachment A-4
(Page 3 of 4)

Math only

```
AUSTIN INDEPENDENT SCHOOL DISTRICT                          RETENTION                  3
OFFICE OF RESEARCH AND EVALUATION                      SA-JF065 0401 X
FREQUENCIES AND PRINTOUT OF UT FILE AMATH81                          X
FIRST GRADERS AND THEIR MATCHES                                      X
GROUP 1 = RETAINEES     GROUP 2 = MATCHES                            X
AND WERE STILL ACTIVE IN MAY 1986                                    X
                                                                           12:13 FRIDAY, JULY 17, 1987
                        MATCHES WHO WERE      RETAINED LATER

VARIABLE      N        MEAN      STANDARD      MINIMUM       MAXIMUM     STD ERROR          SUM        VARIANCE          C.V.
                                DEVIATION       VALUE         VALUE       OF MEAN

READGE       64  1.12031250    0.57684960   0.00000000    2.40000000   0.07210620    71.7000000    0.33275546        51.490
READ2        61  1.79836066    0.59511674   1.00000000    3.50000000   0.07619689   109.7000000    0.35416393        33.092
READ3        62  2.70645161    0.74059590   1.30000000    4.50000000   0.09405577   167.8000000    0.54848228        27.364
READ4        60  3.44000000    0.88780819   1.90000000    6.00000000   0.11461555   206.4000000    0.78820339        25.808
READ5        58  4.07413793    0.95926879   2.40000000    6.60000000   0.12595816   236.3000000    0.92019661        23.545
READ6        60  4.74500000    1.07961465   2.40000000    7.40000000   0.13937765   284.7000000    1.16556780        22.753
LANG2        61  1.98852459    0.74813064   0.70000000    4.20000000   0.09578831   121.3000000    0.55969945        37.622
LANG3        62  2.92096774    1.03339915   0.90000000    5.90000000   0.13124182   181.1000000    1.06791380        35.379
LANG4        61  3.81147541    0.94005290   1.70000000    5.90000000   0.12036144   232.5000000    0.88369945        24.664
LANG5        58  4.38620690    0.94189959   1.80000000    6.50000000   0.12367747   254.4000000    0.88717483        21.474
LANG6        60  5.01166667    1.20508691   2.30000000    8.10000000   0.15557605   300.7000000    1.45223446        24.046
MATHGE       64  1.06406250    0.27218527   0.60000000    2.20000000   0.03402316    68.1000000    0.07408482        25.580
MATH2        64  2.00000000    0.36688305   1.00000000    2.90000000   0.04586038   128.0000000    0.13460317        18.344
MATH3        62  2.76774194    0.47762191   1.70000000    3.70000000   0.06065804   171.6000000    0.22812269        17.257
MATH4        59  3.47627119    0.53023709   2.30000000    4.80000000   0.06903099   205.1000000    0.28115137        15.253
MATH5        59  4.11864407    0.68114371   2.50000000    6.20000000   0.08867736   243.0000000    0.46395675        16.538
MATH6        64  4.84375000    0.78616509   3.40000000    7.20000000   0.09827064   310.0000000    0.61805556        16.231
NOTE: THE PROCEDURE MEANS USED 2.77 SECONDS AND 350K AND PRINTED PAGE 3.

161          PROC DELETE DATA=FRYRIN2   FRYRIN3;                              00001870

NOTE: THE PROCEDURE DELETE USED 2.20 SECONDS AND 284K.
NOTE: SAS USED 350K MEMORY.

NOTE: SAS INSTITUTE INC.
      SAS CIRCLE
      PO BOX 8000
      CARY, N.C.  27511-8000
```

86.30

```
1        S A S   L O G   VSE SAS 82.4         VSE 3.1 JOB EVISAS                           10:03 WEDNESDAY, AUGUST 26, 1987

NOTE: THE JOB EVISAS HAS BEEN RUN UNDER RELEASE 82.4 OF SAS
      AT AUSTIN INDEPENDENT SCHOOL DISTRICT (01986001).

NOTE: CPUID   VERSION = FF  SERIAL = 013553  MODEL = 4341 .

NOTE: NO OPTIONS SPECIFIED.

1                                                                                  00000070
2          *****THIS IS FOR 2-GROUP SORESPOT. SEE SA-PS010 0301 FOP 3-GROUP****;  00000080
3                                                                                  00000090
4         TITLE1 AUSTIN INDEPENDENT SCHOOL DISTRICT                    RETENTION;  00000100
5         TITLE2 OFFICE OF RESEARCH AND EVALUATION                 SA-JF065 0601 X;  00000110
6         TITLE3 '   ';                                                            00000120
7         TITLE4 F CALCULATED FROM R SQUARES                                    X;  00000130
8         TITLE5 '     ';                                                          00000140
9                                                                                  00000150
10         DATA SPOT;                                                              00000160
11          INPUT GRADE 1-2  TEST $ 3  (RSQ1-RSQ7) (6.6)  N 46-49;                 00000170
12                                                                                 00000180
13        CARDS;                                                                   00000190

NOTE: DATA SET USER010.SPOT HAS 2 OBSERVATIONS AND 10 VARIABLES. 102 OBS/TRK.
NOTE: THE DATA STATEMENT USED 2.95 SECONDS AND 322K.

16        ;                                                                        00000220
17                                                                                 00000230
18         DATA SPOT;                                                              00000240
19          SET SPOT;                                                              00000250
20                                                                                 00000260
21          IF TEST EQ '1' THEN TEST='READING';                                    00000270
22          IF TEST EQ '2' THEN TEST='LANGUAGE';                                   00000280
23          IF TEST EQ '3' THEN TEST='MATH';                                       00000290
24                                                                                 00000300
25          F15=((RSQ1-RSQ5)/2)/((1-RSQ1)/(N-6));                                  00000310
26          F12=((RSQ1-RSQ2)/1)/((1-RSQ1)/(N-6));                                  00000320
27          F23=((RSQ2-RSQ3)/1)/((1-RSQ2)/(N-5));                                  00000330
28          F13=((RSQ1-RSQ3)/2)/((1-RSQ1)/(N-6));                                  00000340
29          F34=((RSQ3-RSQ4)/1)/((1-RSQ3)/(N-4));                                  00000350
30          F56=((RSQ5-RSQ6)/1)/((1-RSQ5)/(N-4));                                  00000360
31          F67=((RSQ6-RSQ7)/1)/((1-RSQ6)/(N-3));                                  00000370
32                                                                                 00000380
33                                                                                 00000390

NOTE: DATA SET USER010.SPOT HAS 2 OBSERVATIONS AND 17 VARIABLES. 60 OBS/TRK.
NOTE: THE DATA STATEMENT USED 3.27 SECONDS AND 306K.

33         PROC SORT;                                                              00000390
34                                                                                 00000400
35          BY GRADE TEST;                                                         00000410
36                                                                                 00000420
37                                                                                 00000430

WARNING: SORTSIZE VALUE IS LESS THAN THE MINIMUM
         REQUIRED BY YOUR SYSTEM SORT UTILITY.
         THE SORT UTILITY MAY TERMINATE ABNORMALLY.
NOTE: DATA SET USER010.SPOT HAS 2 OBSERVATIONS AND 17 VARIABLES. 60 OBS/TRK.
NOTE: THE PROCEDURE SORT USED 25.75 SECONDS AND 292K.
```

F tests
Retained
in Grade 1
versus later

Attachment A-5
(Page 1 of 3)

86.30

```
2       S A S   L O G   VSE SAS 82.4        VSE 3.1 JOB EVISAS                          10:03 WEDNESDAY, AUGUST 26, 1987

37           PROC PRINT;                                                                00000430
38            BY GRADE TEST;                                                            00000440
39                                                                                      00000450
40           ******************************************************************        00000460
41                DEGREES OF FREEDOM ASSOCIATED WITH F (1 VS. 5) ARE 2,N-6              00000470
42                                                     (1 VS. 2)     1,N-6              00000480
43                                                     (2 VS. 3)     1,N-5              00000490
44                                                     (1 VS. 3)     2,N-6              00000500
45                                                     (3 VS. 4)     1,N-4              00000510
46                                                     (5 VS. 6)     1,N-4              00000520
47                                                     (6 VS. 7)     1,N-3              00000530
48          ******************************************************************;        00000540
49                                                                                      00000550
50                                                                                      00000560
```

APPENDIX A
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Attachment A-5
(Page 2 of 3)

```
                    AUSTIN INDEPENDENT SCHOOL DISTRICT                RETENTION                              1
                    OFFICE OF RESEARCH AND EVALUATION              SA-JE065 0601 X
                                                                            10:03 WEDNESDAY, AUGUST 26, 1987
                    F CALCULATED FROM R SQUARES                               X

------------------------------------------------ GRADE-5   TEST-M ------------------------------------------------

          OBS      RSQ1        RSQ2        RSQ3        RSQ4        RSQ5        RSQ6        RSQ7       N

           1    0.179131    0.179102    0.178998    0.178469    0.168902    0.168335    0.167956    216

          OBS      F15         F12          F23          F13         F34          F56         F67

           1    1.30842    0.00741897   0.0267317    0.0170125    0.136599    0.144633    0.0970667

------------------------------------------------ GRADE-5   TEST-R ------------------------------------------------

          OBS      RSQ1        RSQ2        RSQ3        RSQ4        RSQ5        RSQ6        RSQ7       N

           2    0.078989    0.077322    0.077319    0.073074    0.052903    0.052868    0.049485    211

          OBS      F15         F12          F23          F13         F34          F56         F67

           2    2.90313    0.371043    0.000669789   0.185856    0.95235    0.00764969    0.742942
NOTE: THE PROCEDURE PRINT USED 3.50 SECONDS AND 356K AND PRINTED PAGE 1.

50          PROC DELETE DATA=SPOT;                                               00000560
51                                                                               00000570

NOTE: THE PROCEDURE DELETE USED 1.95 SECONDS AND 284K.
NOTE: SAS USED 356K MEMORY.

NOTE: SAS INSTITUTE INC.
      SAS CIRCLE
      PO BOX 8000
      CARY, N.C.  27511-8000
```

Attachment A-6

Discriminant Analysis -- Whole Group

1983-84, 1984-85

```
1        S A S   L O G   VSE SAS 82.4          VSE 3.1 JOB EVISAS                           15:52 THURSDAY, FEBRUARY 26, 1987

NOTE: THE JOB EVISAS HAS BEEN RUN UNDER RELEASE 82.4 OF SAS
      AT AUSTIN INDEPENDENT SCHOOL DISTRICT (01998001).

NOTE: CPUID   VERSION = FF  SERIAL = 011551  MODEL = 4341 .

NOTE: NO OPTIONS SPECIFIED.

1                                                                                   00000130
2          OPTIONS ERRORS = 0;                                                      00000140
3                                                                                   00000150
4          TITLE1 AUSTIN INDEPENDENT SCHOOL DISTRICT            1ST GRD RET PRED ;  00000160
5          TITLE2 OFFICE OF RESEARCH AND EVALUATION                SA-JF068 0301;   00000170
6          TITLE3 SCHOOLS  101-160  GRADE 01 ACTIVE AT EOY 1984                 X;  00000180
7          TITLE4 1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                        X;  00000190
8          TITLE5 DISCRIMINANT ANALYSIS;                                            00000200
9                                                                                   00000210
10         *PROC CORR   DATA = FRYYEAR1;                                            00000220
11         *   VAR RETSTAT;                                                         00000230
12         *   WITH  SEX  LESTAT  BLACK  HISPANIC  ANGOTHER  AGERND                 00000240
13         *          MRT  ITBSR  ITBSM  ITBSL  SCHDAYS;                            00000250
14         *                                                                        00000260
15         *PROC TABULATE   F=7  DATA = FRYYEAR1;                                   00000270
16         *   CLASS RETSTAT;                                                       00000280
17         *   VAR MRT  ITBSR  ITBSM  ITBSL;                                        00000290
18         *   TABLE  RETSTAT  ALL,                                                 00000300
19         *          (MRT  ITBSR  ITBSL  ITBSM)*(N  MEAN*F=7.1);                   00000310
20         *   KEYLABEL  ALL = 'TOTAL';                                             00000320
21                                                                                  00000330
22         DATA FRYTEST1;                                                           00000340
23             SET FRYYEAR1;                                                        00000350
24             IF MRT GT 0;                                                         00000360
25             IF SCHDAYS GE 155  THEN SCHDAYS = SCHDAYS + 15;                      00000370
26             SEXB = 0;  LESTATB = 0;  AGERNDB = 0;  MRTB = 0;  SCHDAYSB = 0;      00000380
27             SEXH = 0;  LESTATH = 0;  AGERNDH = 0;  MRTH = 0;  SCHDAYSH = 0;      00000390
28             SEXA = 0;  LESTATA = 0;  AGERNDA = 0;  MRTA = 0;  SCHDAYSA = 0;      00000400
29                                                                                  00000410
30             IF BLACK = 1       THEN GO TO CHKBLACK;                              00000420
31             IF HISPANIC = 1    THEN GO TO CHKHIS;                                00000430
32                                                                                  00000440
33             SEXA      = SEX;                                                     00000450
34             LESTATA   = LESTAT;                                                  00000460
35             AGERNDA   = AGERND;                                                  00000470
36             MRTA      = MRT;                                                     00000480
37             SCHDAYSA  = SCHDAYS;                                                 00000490
38             GO TO KEEPIT;                                                        00000500
39                                                                                  00000510
40           CHKBLACK:                                                              00000520
41             SEXB      = SEX;                                                     00000530
42             LESTATB   = LESTAT;                                                  00000540
43             AGERNDB   = AGERND;                                                  00000550
44             MRTB      = MRT;                                                     00000560
45             SCHDAYSB  = SCHDAYS;                                                 00000570
46             GO TO KEEPIT;                                                        00000580
47                                                                                  00000590
48           CHKHIS:                                                                00000600
49             SEXH      = SEX;                                                     00000610
50             LESTATH   = LESTAT;                                                  00000620
51             AGERNDH   = AGERND;                                                  00000630
```

Attachment A-6

Discriminant Whole Group
1983-84
1984-85

All groups
2nd run
Var. Variance
Pooled =
Yes

86.30

APPENDIX A

25

Attachment A-6

86.30

```
52              MRTH     = MRT;                                                 00000640
53              SCHDAYSH = SCHDAYS;                                             00000650
54              GO TO KEEPIT;                                                   00000660
55                                                                              00000670
56            KEEPIT:                                                           00000680
57              KEEP STUID  RETSTAT  BLACK  HISPANIC                            00000690
58                    SEXB  LISTATB  AGERNDB  MRTB  SCHDAYSB                    00000700
59                    SEXH  LISTATH  AGERNDH  MRTH  SCHDAYSH                    00000710
60                    SEXA  LISTATA  AGERNDA  MRTA  SCHDAYSA;                   00000720
61                                                                              00000730
62                                                                              00000740

NOTE: DATA SET USER01J.FRYTEST1 HAS 3374 OBSERVATIONS AND 19 VARIABLES. 50 OBS/TRK.
NOTE: THE DATA STATEMENT USED 39.51 SECONDS AND 330K.

63          DATA FRYTEST2;                                                      00000750
64              SET FRYYEARA;                                                   00000760
65              IF MRT GT 0;                                                    00000770
66              SEXB = 0;  LISTATB = 0;  AGERNDB = 0;  MRTB = 0;  SCHDAYSB = 0; 00000780
67              SEXH = 0;  LISTATH = 0;  AGERNDH = 0;  MRTH = 0;  SCHDAYSH = 0; 00000790
68              SEXA = 0;  LISTATA = 0;  AGERNDA = 0;  MRTA = 0;  SCHDAYSA = 0; 00000800
69                                                                              00000810
70              IF BLACK = 1       THEN GO TO CHKBLACK;                         00000820
71              IF HISPANIC = 1    THEN GO TO CHKHIS;                           00000830
72                                                                              00000840
73              SEXA     = SEX;                                                 00000850
74              LISTATA  = LISTAT;                                              00000860
75              AGERNDA  = AGERND;                                              00000870
76              MRTA     = MRT;                                                 00000880
77              SCHDAYSA = SCHDAYS;                                             00000890
78              GO TO KEEPIT;                                                   00000900
79                                                                              00000910
80            CHKBLACK:                                                         00000920
81              SEXB     = SEX;                                                 00000930
82              LISTATB  = LISTAT;                                              00000940
83              AGERNDB  = AGERND;                                              00000950
84              MRTB     = MRT;                                                 00000960
85              SCHDAYSB = SCHDAYS;                                             00000970
86              GO TO KEEPIT;                                                   00000980
87                                                                              00000990
88            CHKHIS:                                                           00001000
89              SEXH     = SEX;                                                 00001010
90              LISTATH  = LISTAT;                                              00001020
91              AGERNDH  = AGERND;                                              00001030
92              MRTH     = MRT;                                                 00001040
93              SCHDAYSH = SCHDAYS;                                             00001050
94              GO TO KEEPIT;                                                   00001060
95                                                                              00001070
96            KEEPIT:                                                           00001080
97              KEEP STUID  RETSTAT  BLACK  HISPANIC                            00001090
98                    SEXB  LISTATB  AGERNDB  MRTB  SCHDAYSB                    00001100
99                    SEXH  LISTATH  AGERNDH  MRTH  SCHDAYSH                    00001110
100                   SEXA  LISTATA  AGERNDA  MRTA  SCHDAYSA;                   00001120
101                                                                             00001130
102         PROC DISCRIM   DATA = FRYTEST1                                      00001140

NOTE: DATA SET USER01U.FRYTEST2 HAS 3564 OBSERVATIONS AND 19 VARIABLES. 50 OBS/TRK.
NOTE: THE DATA STATEMENT USED 31.85 SECONDS AND 336K.
```

86.30

APPENDIX A
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```
3        S A S   L O G   VSE SAS 82.4        VSE 3.1 JOB EVISAS                      14:52 THURSDAY, FEBRUARY 26, 1987

103                     S   POOL = YES    SLPOOL = .05   WCOV   WCORR                  00001150
104                     PCOV  PCORR  LISTERR   OUT = DERIVED                           00001160
105                     TESTDATA = FRYTEST2   TESTLISTERR;                             00001170
106           CLASS RETSTAT;                                                           00001180
107           VAR  BLACK  HISPANIC                                                     00001190
108                SEXB  LISTATB  AGERNOB  MRTB  SCHDAYSB                              00001200
109                SEXH  LISTATH  AGERNOH  MRTH  SCHDAYSH                              00001210
110                SEXA  LISTATA  AGERNDA  MRTA  SCHDAYSA;                             00001220
111           ID STUID;                                                                00001230
112           PRIORS PROPORTIONAL;                                                     00001240
113           TESTCLASS RETSTAT;                                                       00001250
114           TESTID STUID;                                                            00001260
115                                                                                    00001270
```

1984-85

```
 AUSTIN INDEPENDENT SCHOOL DISTRICT           1ST GRD RET PRED                  1
OFFICE OF RESEARCH AND EVALUATION               SA-JF068 0301
SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984              X
1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                     X
                  DISCRIMINANT ANALYSIS             14:52 THURSDAY, FEBRUARY 26, 1987

                  DISCRIMINANT ANALYSIS

     RETSTAT                FREQUENCY     PRIOR PROBABILITY

           0                     2985            0.88470658

           1                      389            0.11529342
     -----                       ----            ----------
     TOTAL                       3374            1.00000000
```

86.30

```
                    AUSTIN INDEPENDENT SCHOOL DISTRICT             1ST GRD RET PRED                          2
                    OFFICE OF RESEARCH AND EVALUATION               SA-JF068 0301
                    SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984
                    1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR
                                       DISCRIMINANT ANALYSIS                 14:52 THURSDAY, FEBRUARY 26, 1987

                              DISCRIMINANT ANALYSIS     SIMPLE STATISTICS

                                            RETSTAT = 0    Not Ret.

                                                                                                        STANDARD
VARIABLE          N              SUM                  MEAN                VARIANCE                 DEVIATION

BLACK           2985         600.00000000          0.20100503           0.16065583              0.40081894
HISPANIC        2985         785.00000000          0.26298157           0.19388722              0.44032627
SEXB            2985         299.00000000          0.10016750           0.09016418              0.30027351
LISTATB         2985         427.00000000          0.14304858           0.12262676              0.35018104
AGERNDB         2985        4014.00000000          1.34472362           7.23528800              2.68984907
MRTB            2985       28732.00000000          9.62546064         400.19278317             20.00481900
SCHDAYSB        2985      165837.00000000         55.55678392       12274.32594676            110.78955703
SEXH            2985         398.00000000          0.13333333           0.11559428              0.33999159
LISTATH         2985         506.00000000          0.16951424           0.14082634              0.37526836
AGERNDH         2985        5298.70000000          1.77510888           8.89507392              2.98246105
MRTH            2985       41097.00000000         13.76783920         564.21853638             23.75328475
SCHDAYSH        2985      217134.00000000         72.74170854       14835.26335700            121.80009588
SEXA            2985         787.00000000          0.26365159           0.19420449              0.44068638
LISTATA         2985         304.00000000          0.10184255           0.09150130              0.30249181
AGERNDA         2985       10489.00000000          3.51390285          10.76695477              3.28130382
MRTA            2985       95065.00000000         31.84757119         929.34572550             30.48517222
SCHDAYSA        2985      442893.00000000        148.37286432       19063.72118030            138.07143506
------------------------------------------------------------------------------------------------------------

                                            RETSTAT = 1    R.T.

BLACK            389         109.00000000          0.28020566           0.20221027              0.44967796
HISPANIC         389         178.00000000          0.45758355           0.24864054              0.49883919
SEXB             389          59.00000000          0.15167095           0.12899849              0.35916360
LISTATB          389          87.00000000          0.22365039           0.17407839              0.41722703
AGERNDB          389         703.30000000          1.80796915           8.44202396              2.90551613
MRTB             389        3256.00000000          8.37017995         203.31106724             14.25871899
SCHDAYSB         389       30122.00000000         77.43444730       15443.72056290            124.27276678
SEXH             389          94.00000000          0.24164524           0.18372512              0.42863168
LISTATH          389         141.00000000          0.36246787           0.23168049              0.48133200
AGERNDH          389        1151.50000000          2.96015424          10.46317626              3.23468333
MRTH             389        6050.00000000         15.55269923         333.88703522             18.27257604
SCHDAYSH         389       49158.00000000        126.37017995       18982.20797445            137.77593395
SEXA             389          71.00000000          0.18251928           0.14959054              0.38676937
LISTATA          389          44.00000000          0.11311054           0.10057509              0.31713576
AGERNDA          389         651.10000000          1.67377892           7.93059934              2.81613198
MRTA             389        4026.00000000         10.34961440         326.18673310             18.06064044
SCHDAYSA         389       28226.00000000         72.56041131       14853.20059364            121.87370756
```

```
    AUSTIN INDEPENDENT SCHOOL DISTRICT                  1ST GRD RET PRED                                    1
    OFFICE OF RESEARCH AND EVALUATION                     SA-#068 0301
    SCHOOLS 101-164  GRADE 01 ACTIVE AT EOY 1985                     *
    1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                           *
                       DISCRIMINANT ANALYSIS                  14:52 THURSDAY, FEBRUARY 26, 1987

              DISCRIMINANT ANALYSIS     WITHIN COVARIANCE MATRICES

                   RETSTAT = 0                     DF =  2984

VARIABLE           BLACK          HISPANIC              SEXB          LISTATB          AGERNDB             MRTB

BLACK         0.16065583       -0.05287833        0.00006015       0.11433340       1.07476748       7.69327199
HISPANIC     -0.05287833        0.19384722       -0.02635104      -0.03763175      -0.35375605      -2.53216709
SEXB          0.00006015       -0.02635104        0.09016518       0.05838756       0.53851409       3.75234158
LISTATB       0.11433340       -0.03763175        0.05838756       0.12262676       0.77044337       5.20439957
AGERNDB       1.07476748       -0.35375605        0.53851409       0.77044337       7.23528000      51.67141455
MRTB          7.69327199       -2.53216709        3.75234158       5.20439957      51.67141455     400.19278317
SCHDAYSB     44.40446706      -14.61530676       22.11210510      31.57213581     297.04683959    2127.05713285
SEXH         -0.02680565        0.09830206       -0.01336016      -0.01907956      -0.17935657      -1.28382484
LISTATH      -0.01400463        0.12497699       -0.01698551      -0.02425690      -0.22802619      -1.63219942
AGERNDH      -0.35692538        1.30872638       -0.17786781      -0.25401189      -2.38783078     -17.09196658
MRTH         -2.76833228       10.15055169       -1.37955225      -1.97012980     -18.52014296    -132.56620502
SCHDAYSH    -14.62634890       53.62994598       -7.28879720     -10.40908497     -97.85027416    -700.40709445
SEXA         -0.05301305       -0.06535873       -0.02661817      -0.03772762      -0.35465733      -2.53861847
LISTATA      -0.02047772       -0.02679169       -0.01020673      -0.01457331      -0.13699597      -0.98060993
AGERNDA      -0.70654883       -0.92650135       -0.35209683      -0.50282725      -4.72681167     -33.83426830
MRTA         -6.40366713       -8.37013116       -3.19116079      -4.55727644     -42.84053309    -306.65027326
SCHDAYSA    -29.03366586      -39.03260566      -14.86712017     -21.23163977    -199.58735837   -1428.63577000

VARIABLE        SCHDAYSB              SEXH           LISTATH          AGERNDH             MRTH         SCHDAYSH

BLACK        44.40446706       -0.02680565       -0.01400463      -0.35692538      -2.76833228     -14.62634890
HISPANIC    -14.61530676        0.09830206        0.12497699       1.30872638      10.15055169      53.62994598
SEXB         22.11210510       -0.01336016       -0.01698551      -0.17786781      -1.37955225      -7.28879720
LISTATB      31.57213581       -0.01907956       -0.02425690      -0.25401189      -1.97012980     -10.40908497
AGERNDB     297.04683959       -0.17935657       -0.22802619      -2.38783078     -18.52014296     -97.85027416
MRTB       2127.05713285       -1.28382484       -1.63219942     -17.09196658    -132.56620502    -700.40709445
SCHDAYSB  12274.32594676       -7.41005362       -9.42682196     -98.65238973    -765.15319998   -4042.64970496
SEXH         -7.41005362        0.11559528        0.06050065       0.67081323       5.20053619      27.18994638
LISTATH      -9.42682196        0.06050065        0.14082636       0.85599695       6.25418008      34.54145291
AGERNDH     -98.65238973        0.67081323        0.85599695       8.89507392      68.66519787     361.99387029
MRTH       -765.15319998        5.20053617        6.25418008      68.66519787     564.21853638    2808.35388875
SCHDAYSH  -4042.64970496       27.18994638       34.54145291     361.99387029    2808.35388875   14835.26335700
SEXA        -14.65254321       -0.03316533       -0.04470768      -0.46816712      -3.63112917     -19.18489431
LISTATA      -5.65394645       -0.01358356       -0.01726955      -0.18084219      -1.40262169      -7.41068344
AGERNDA    -193.23656345       -0.46867779       -0.59585618      -6.23965048     -48.39506211    -255.69295607
MRTA      -1769.56157618       -4.24777586       -5.40062595     -56.55185170    -438.61918002   -2317.42309739
SCHDAYSA  -8245.66166235      -19.74967828      -25.15974174    -263.46625207   -2043.45031268  -10756.51257427
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APPENDIX A
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      AUSTIN INDEPENDENT SCHOOL DISTRICT              1ST GRD RET PRED                    4
    OFFICE OF RESEARCH AND EVALUATION                   SA-JF068 0301
    SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                   X
    1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                          X
                        DISCRIMINANT ANALYSIS                 14:52 THURSDAY, FEBRUARY 26, 1987

               DISCRIMINANT ANALYSIS      WITHIN COVARIANCE MATRICES

                     RETSTAT = 0                    DF =   2984

VARIABLE                SEXA            LISTATA            AGERNDA               MRIA           SCHDAYSA

BLACK            -0.05301305        -0.02047772        -0.70654083        -6.40366713       -29.83368586
HISPANIC         -0.06635875        -0.02679169        -0.92440149        -8.37813116       -39.03240566
SEXB             -0.02641617        -0.01020473        -0.35209683        -3.19116079       -14.86712012
LISTATB          -0.03772762        -0.01457331        -0.50282725        -4.55727644       -21.23163977
AGERNDB          -0.35465733        -0.13699597        -4.72681167       -42.84053309      -199.58735837
MRTB             -2.53061847        -0.98060593       -33.83426830      -306.65027326     -1428.63577000
SCHDAYSB        -14.65234321        -5.65994045      -195.28656385     -1769.94157618     -8245.88160205
SEXH             -0.03516533        -0.01358356        -0.46867739        -4.24776586       -19.78967828
LISTATH          -0.04476760        -0.01726955        -0.59585618        -5.40042595       -25.15974174
AGERNDH          -0.46816712        -0.18084219        -6.23965048       -56.55185170      -263.46625207
MRTH             -3.63112517        -1.40262169       -48.39506211      -438.61918002     -2043.45831268
SCHDAYSH        -19.18085411        -7.41068344      -255.69295607     -2317.42309739    -10796.51257427
SEXA              0.19926669         0.02307303         0.81275418         7.18832489        33.87217017
LISTATA           0.02307303         0.09150130         0.32274502         2.33255307        13.04981543
AGERNDA           0.81275418         0.32274502        10.76695477        97.01348049       451.44903691
MRIA              7.18832489         2.33255307        97.01348049       929.34572550      4092.57495083
SCHDAYSA         33.87217017        13.04981543       451.44903691      4092.57495083     19063.72118030

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                     RETSTAT = 1                    DF =    388

VARIABLE               BLACK           HISPANIC               SEXB            LISTATB            AGERNDB               MRTB

BLACK             0.20221027        -0.12054796         0.10945326         0.16139719         1.30472001         6.04033605
HISPANIC         -0.12054796         0.24884055        -0.06958100        -0.10260250        -0.82942915        -3.83992791
SEXB              0.10945326        -0.06958100         0.12899849         0.08712533         0.71296345         3.36639016
LISTATB           0.16139719        -0.10260250         0.08712533         0.17407839         1.04743991         4.72369676
AGERNDB           1.30472001        -0.82942915         0.71296345         1.04743991         8.44202396        38.99188774
MRTB              6.04033605        -3.83992791         3.36639016         4.72369676        38.99188774       203.31106724
SCHDAYSB         55.88052898       -35.52405057        30.30249386        44.56495640       360.54987942      1670.17639069
SEXH             -0.06708488         0.13141017        -0.03674502        -0.05410334        -0.43001314        -2.02782710
LISTATH          -0.10182731         0.19711526        -0.05511754        -0.08127501        -0.65701972        -3.04174065
AGERNDH          -0.83150972         1.60977460        -0.45012655        -0.66374593        -5.36566103       -24.84088199
MRTH             -4.36918612         8.45778231        -2.36497231        -3.48733204       -28.19127157      -130.51440384
SCHDAYSH        -35.50096107        68.72192776       -19.21608406       -28.33558159      -229.06223597     -1060.46720328
SEXA             -0.05127475        -0.00373307        -0.02775422        -0.04092571        -0.33083972        -1.53165664
LISTATA          -0.03177590        -0.05189092        -0.01779980        -0.02516241        -0.20502743        -0.94919566
AGERNDA          -0.47021109        -0.76786765        -0.25451793        -0.37530610        -3.03393999       -14.04593857
MRIA             -2.50745477        -4.74001098        -1.57378157        -2.32066096       -18.76000981       -86.85140328
SCHDAYSA        -20.38423926       -33.28802375       -11.03367079       -16.26998913      -131.52509607      -608.90901863
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APPENDIX

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                  AUSTIN INDEPENDENT SCHOOL DISTRICT          1ST GRD RET PRED                        5
                  OFFICE OF RESEARCH AND EVALUATION              SA-JF068 0301
                  SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984              X
                  1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                     X
                                   DISCRIMINANT ANALYSIS             14:52 THURSDAY, FEBRUARY 26, 1987

                        DISCRIMINANT ANALYSIS     WITHIN COVARIANCE MATRICES

                                   RETSTAT = 1                   DF =   388

VARIABLE         SCHDAYSB            SEXH          LISTATH          AGERNDH             MRTH         SCHDAYSH

BLACK         55.88052898     -0.06788488      -0.10182731      -0.83158972      -4.36918612     -35.50090107
HISPANIC     -35.52405657      0.13141017       0.19711526       1.60977460       8.45778231      68.72192776
SEXB          30.30245384     -0.03674502      -0.05511754      -0.45012655      -2.36497231     -19.21608406
LISTATB       44.56495640     -0.05418334      -0.08127501      -0.66374593      -3.48733204     -28.33558159
AGERNDB      360.54987942     -0.43801314      -0.65701972      -5.36566103     -28.19127157    -229.06223597
MRTB        1670.17635069     -2.02782710      -3.04174065     -24.84088199    -130.51440384   -1060.46728328
SCHDAYSB   15443.72056290    -18.75989187     -28.13983781    -229.80867543   -1207.41857260   -9810.62515570
SEXH         -18.75989187      0.18372512       0.09002067       0.84367397       4.59290276      36.29949249
LISTATH      -28.13983781      0.09002067       0.23168049       1.27556250       6.28626136      54.41702224
AGERNDH     -229.80867543      0.84367397       1.27556250      10.46317626      54.92104855     444.59726234
MRTH       -1207.41857260      4.59290276       6.28626136      54.92104855     333.88703522    2337.33611163
SCHDAYSH   -9810.62515570     36.29949249      54.41702224     444.59726234    2337.33611163   18982.20797445
SEXA         -14.16976556     -0.04421859      -0.06632788      -0.54167771      -2.84598362     -23.12444015
LISTATA       -8.78122598     -0.02740307      -0.04110460      -0.33568759      -1.76370816     -14.33063896
AGERNDA     -129.94218721     -0.40550314      -0.60825471      -4.96741347     -26.09887234    -212.06088702
MRTA        -803.48217740     -2.50738081      -3.76107121     -30.71541489    -161.37929664   -1311.25346514
SCHDAYSA   -5633.15646781    -17.57906872     -26.36860308    -215.34359182   -1131.41878462   -9193.10489492

VARIABLE             SEXA         LISTATA          AGERNDA             MRTA         SCHDAYSA

BLACK         -0.05127475     -0.03177590      -0.47021109      -2.90749477     -20.38423926
HISPANIC      -0.08373307     -0.05189092      -0.76786765      -4.74801898     -33.28802375
SEXB          -0.02775422     -0.01719980      -0.25451793      -1.57378157     -11.03367079
LISTATB       -0.04092571     -0.02536241      -0.37530610      -2.32066096     -16.26998913
AGERNDB       -0.33083972     -0.20502743      -3.03393999     -18.76000981    -131.52509607
MRTB          -1.53165664     -0.94917566     -14.04593857     -86.85140328    -608.90901863
SCHDAYSB     -14.16976556     -8.78122598    -129.94218721    -803.48217740   -5633.15646781
SEXH          -0.04421859     -0.02740307      -0.40550314      -2.50738081     -17.57906872
LISTATH       -0.06632788     -0.04110460      -0.60825471      -3.76107121     -26.36860308
AGERNDH       -0.54167771     -0.33568759      -4.96741347     -30.71541489    -215.34359182
MRTH          -2.84598362     -1.76370816     -26.09887234    -161.37929664   -1131.41878462
SCHDAYSH     -23.12444015    -14.33063896    -212.06088702   -1311.25346514   -9193.10489492
SEXA           0.14955654      0.06177616       0.85943736       5.28653963      37.34590412
LISTATA        0.06177616      0.10057509       0.53673641       3.17427053      23.11686057
AGERNDA        0.85943736      0.53673641       7.93059934      48.77233522     342.61705205
MRTA           5.28653963      3.17427053      48.77233522     326.18673310    2118.66181459
SCHDAYSA      37.34590412     23.11686057     342.61705205    2118.66181459   14853.20059364
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               AUSTIN INDEPENDENT SCHOOL DISTRICT            1ST GRD RET PRED                          6
               OFFICE OF RESEARCH AND EVALUATION               SA-JF068 0301
               SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984               X
               1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                      X
                                      DISCRIMINANT ANALYSIS         14:52 THURSDAY, FEBRUARY 26, 1987

          DISCRIMINANT ANALYSIS      WITHIN CORRELATION COEFFICIENTS   /   PROBABILITY > |R|

                                              RETSTAT = 0

VARIABLE       BLACK    HISPANIC        SEXB     LISTATB     AGERNDB        HRTB    SCHDAYSB        SEXH     LISTATH

BLACK       1.000000   -0.299609    0.665198    0.814577    0.996888    0.959463    0.999953   -0.196732   -0.226604
              0.0000      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001

HISPANIC   -0.299609    1.000000   -0.199299   -0.244055   -0.298677   -0.287464   -0.299595    0.656629    0.756334
              0.0001      0.0000      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001

SEXB        0.665198   -0.199299    1.000000    0.555278    0.666609    0.624670    0.664682   -0.130866   -0.150737
              0.0001      0.0001      0.0000      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001

LISTATB     0.814577   -0.244055    0.555278    1.000000    0.817938    0.742922    0.813790   -0.160253   -0.184587
              0.0001      0.0001      0.0001      0.0000      0.0001      0.0001      0.0001      0.0001      0.0001

AGERNDB     0.996888   -0.298677    0.666609    0.817938    1.000000    0.960258    0.996777   -0.196120   -0.225899
              0.0001      0.0001      0.0001      0.0001      0.0000      0.0001      0.0001      0.0001      0.0001

HRTB        0.959463   -0.287464    0.624670    0.742922    0.960258    1.000000    0.959723   -0.188757   -0.217419
              0.0001      0.0001      0.0001      0.0001      0.0001      0.0000      0.0001      0.0001      0.0001

SCHDAYSB    0.999953   -0.299595    0.664682    0.813790    0.996777    0.959723    1.000000   -0.196723   -0.226594
              0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0000      0.0001      0.0001

SEXH       -0.196732    0.656629   -0.130866   -0.160253   -0.196120   -0.188757   -0.196723    1.000000    0.474186
              0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0000      0.0001

LISTATH    -0.226604    0.756334   -0.150737   -0.184587   -0.225899   -0.217419   -0.226594    0.474186    1.000000
              0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0000

AGERNDH    -0.298576    0.996551   -0.198612   -0.243213   -0.297647   -0.286472   -0.298562    0.661544    0.764813
              0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001

HRTH       -0.290768    0.970491   -0.193418   -0.236853   -0.289863   -0.278981   -0.290754    0.643956    0.701625
              0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001

SCHDAYSH   -0.299599    0.999966   -0.199293   -0.244046   -0.298666   -0.287454   -0.299585    0.656587    0.755703
              0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001

SEXA       -0.300127   -0.357435   -0.199644   -0.244477   -0.299193   -0.287961   -0.300113   -0.234702   -0.270340
              0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001

LISTATA    -0.168896   -0.201146   -0.112349   -0.137579   -0.168371   -0.162050   -0.168888   -0.132078   -0.152134
              0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001

AGERNDA    -0.537214   -0.639793   -0.357354   -0.437602   -0.535543   -0.515437   -0.537189   -0.420106   -0.483897
              0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001

HRTA       -0.524073   -0.624143   -0.348613   -0.426898   -0.522442   -0.502829   -0.524048   -0.409830   -0.472060
              0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001
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                         AUSTIN INDEPENDENT SCHOOL DISTRICT            1ST GRD RET PRED                 7
                        OFFICE OF RESEARCH AND EVALUATION                SA-JF068 0301
                        SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984              X
                        1984 SCHCOL YEAR  TO  1985 SCHCOL YEAR                     X
                                             DISCRIMINANT ANALYSIS           14:52 THURSDAY, FEBRUARY 26, 1987

                  DISCRIMINANT ANALYSIS     WITHIN CORRELATION COEFFICIENTS   /   PROBABILITY > |R|

                                                   RETSTAT = 0

VARIABLE      BLACK   HISPANIC       SEXB    LISTATB    AGERNDB       MRTB   SCHDAYSB       SEXH    LISTATH

SCHDAYSA  -0.539082  -0.642018  -0.358596  -0.439124  -0.537404  -0.517229  -0.539057  -0.421567  -0.485580
             0.0001     0.0001     0.0001     0.0001     0.0001     0.0001     0.0001     0.0001     0.0001
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          AUSTIN INDEPENDENT SCHOOL DISTRICT               1ST GRD RET PRED                       8
         OFFICE OF RESEARCH AND EVALUATION                   SA-JF068 0301
         SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984               X
         1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                      X
                          DISCRIMINANT ANALYSIS                14:52 THURSDAY, FEBRUARY 26, 1987

          DISCRIMINANT ANALYSIS      WITHIN CORRELATION COEFFICIENTS   /   PROBABILITY > |R|

                                                   RETSIAT = 0

VARIABLE      AGERNDH      MRTH    SCHDAYSH      SEXA    LISTATA    AGERNDA      MRTA    SCHDAYSA

BLACK       -0.298576 -0.290768  -0.299599 -0.300127  -0.168896  -0.537214 -0.524073  -0.539082
               0.0001    0.0001     0.0001    0.0001     0.0001     0.0001    0.0001     0.0001

HISPANIC     0.996551  0.970491   0.999966 -0.357435  -0.201146  -0.639793 -0.624143  -0.642018
               0.0001    0.0001     0.0001    0.0001     0.0001     0.0001    0.0001     0.0001

SEXB        -0.198612 -0.193418  -0.199293 -0.199644  -0.112349  -0.357354 -0.348613  -0.358596
               0.0001    0.0001     0.0001    0.0001     0.0001     0.0001    0.0001     0.0001

LISTATB     -0.243213 -0.236853  -0.244046 -0.244477  -0.137579  -0.437602 -0.426898  -0.439124
               0.0001    0.0001     0.0001    0.0001     0.0001     0.0001    0.0001     0.0001

AGERNDB     -0.297647 -0.289863  -0.298666 -0.299193  -0.168371  -0.535543 -0.522442  -0.537404
               0.0001    0.0001     0.0001    0.0001     0.0001     0.0001    0.0001     0.0001

MRTB        -0.286472 -0.278981  -0.287454 -0.287961  -0.162050  -0.515437 -0.502829  -0.517229
               0.0001    0.0001     0.0001    0.0001     0.0001     0.0001    0.0001     0.0001

SCHDAYSB    -0.298562 -0.290754  -0.299585 -0.300113  -0.168888  -0.537189 -0.524048  -0.539057
               0.0001    0.0001     0.0001    0.0001     0.0001     0.0001    0.0001     0.0001

SEXH         0.661544  0.643956   0.656587 -0.234702  -0.132078  -0.420106 -0.409830  -0.421567
               0.0001    0.0001     0.0001    0.0001     0.0001     0.0001    0.0001     0.0001

LISTATH      0.764813  0.701625   0.755703 -0.270340  -0.152134  -0.483897 -0.472060  -0.485580
               0.0001    0.0001     0.0001    0.0001     0.0001     0.0001    0.0001     0.0001

AGERNDH      1.000000  0.969255   0.996503 -0.356202  -0.200452  -0.637586 -0.621990  -0.639803
               0.0000    0.0001     0.0001    0.0001     0.0001     0.0001    0.0001     0.0001

MRTH         0.969255  1.000000   0.970690 -0.346887  -0.195211  -0.620913 -0.605725  -0.623072
               0.0001    0.0000     0.0001    0.0001     0.0001     0.0001    0.0001     0.0001

SCHDAYSH     0.996503  0.970690   1.000000 -0.357423  -0.201139  -0.639771 -0.624121  -0.641996
               0.0001    0.0001     0.0000    0.0001     0.0001     0.0001    0.0001     0.0001

SEXA        -0.356202 -0.346887  -0.357423  1.000000   0.173086   0.562061  0.535069   0.556685
               0.0001    0.0001     0.0001    0.0000     0.0001     0.0001    0.0001     0.0001

LISTATA     -0.200452 -0.195211  -0.201139  0.173086   1.000000   0.325163  0.252947   0.312455
               0.0001    0.0001     0.0001    0.0001     0.0000     0.0001    0.0001     0.0001

AGERNDA     -0.637586 -0.620913  -0.639771  0.562061   0.325163   1.000000  0.969833   0.996457
               0.0001    0.0001     0.0001    0.0001     0.0001     0.0000    0.0001     0.0001

MRTA        -0.621990 -0.605725  -0.624121  0.535069   0.252947   0.969833  1.000000   0.972309
               0.0001    0.0001     0.0001    0.0001     0.0001     0.0001    0.0000     0.0001
          AUSTIN INDEPENDENT SCHOOL DISTRICT            1ST GRD RET PRED                         9
         OFFICE OF RESEARCH AND EVALUATION                  SA-JF068 0301
         SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                 X
         1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                        X
                                DISCRIMINANT ANALYSIS           14:52 THURSDAY, FEBRUARY 26, 1987

   DISCRIMINANT ANALYSIS     WITHIN CORRELATION COEFFICIENTS   /   PROBABILITY > |R|

                                    RETSTAT = 0

VARIABLE     AGERNGH       MRTH    SCHDAYSH        SEXA     LISTATA     AGERNDA        MRTA    SCHDAYSA

SCHDAYSA   -0.639803  -0.623072  -0.641996    0.556685    0.312455    0.996457    0.972309    1.000000
              0.0001     0.0001     0.0001      0.0001      0.0001      0.0001      0.0001      0.0000
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                        OFFICE OF RESEARCH AND EVALUATION                         SA-JE068 0301
                        SCHOOLS  101-168  GRADE 11 ACTIVE AT EOY 1985                        *
                        1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                               *
                                          DISCRIMINANT ANALYSIS              15:52 THURSDAY, FEBRUARY 26, 1987

                DISCRIMINANT ANALYSIS      WITHIN CORRELATION COEFFICIENTS  /  PROBABILITY > |R|

                                                  RETAIN = 1

VARIABLE         BLACK    HISPANIC       SEXB     LESTATB    AGERNOB       MRTB    SCHDAYSB       SEXH     LESTATH

BLACK         1.000000   -0.573066   0.677656   0.860255   0.998602   0.952061   0.999961  -0.352198  -0.470555
                0.0000      0.0001     0.0001     0.0001     0.0001     0.0001     0.0001     0.0001     0.0001

HISPANIC     -0.573066    1.000000  -0.388363  -0.492575  -0.572263  -0.539861  -0.573061   0.614598   0.820967
                0.0001      0.0000     0.0001     0.0001     0.0001     0.0001     0.0001     0.0001     0.0001

SEXB          0.677656   -0.388363   1.000000   0.541596   0.643206   0.657382   0.678997  -0.238683  -0.318825
                0.0001      0.0001     0.0000     0.0001     0.0001     0.0001     0.0001     0.0001     0.0001

LESTATB       0.860255   -0.492575   0.541596   1.000000   0.865039   0.795016   0.859598  -0.302977  -0.505706
                0.0001      0.0001     0.0001     0.0000     0.0001     0.0001     0.0001     0.0001     0.0001

AGERNOB       0.998602   -0.572263   0.643206   0.865039   1.000000   0.951175   0.998581  -0.351706  -0.469797
                0.0001      0.0001     0.0001     0.0001     0.0000     0.0001     0.0001     0.0001     0.0001

MRTB          0.952061   -0.539861   0.657382   0.795016   0.951175   1.000000   0.962551  -0.331792  -0.443197
                0.0001      0.0001     0.0001     0.0001     0.0001     0.0000     0.0001     0.0001     0.0001

SCHDAYSB      0.999961   -0.573061   0.678997   0.859598   0.998581   0.962551   1.000000  -0.352184  -0.470536
                0.0001      0.0001     0.0001     0.0001     0.0001     0.0001     0.0000     0.0001     0.0001

SEXH         -0.352198    0.614598  -0.238683  -0.302977  -0.351706  -0.331792  -0.352184   1.000000   0.436328
                0.0001      0.0001     0.0001     0.0001     0.0001     0.0001     0.0001     0.0000     0.0001

LESTATH      -0.470555    0.820967  -0.318825  -0.505706  -0.469797  -0.443197  -0.470536   0.436328   1.000000
                0.0001      0.0001     0.0001     0.0001     0.0001     0.0001     0.0001     0.0001     0.0000

AGERNOH      -0.571719    0.997637  -0.387665  -0.491819  -0.570911  -0.538586  -0.571687   0.608497   0.819267
                0.0001      0.0001     0.0001     0.0001     0.0001     0.0001     0.0001     0.0001     0.0001

MRTH         -0.531750    0.927689  -0.360158  -0.457626  -0.530996  -0.500931  -0.531719   0.586812   0.715750
                0.0001      0.0001     0.0001     0.0001     0.0001     0.0001     0.0001     0.0001     0.0001

SCHDAYSH     -0.573013    0.999411  -0.388328  -0.492931  -0.572212  -0.539813  -0.572990   0.614671   0.820572
                0.0001      0.0001     0.0001     0.0001     0.0001     0.0001     0.0001     0.0001     0.0001

SEXA         -0.296815   -0.433395  -0.177795  -0.253613  -0.295501  -0.277735  -0.296806  -0.266728  -0.356286
                0.0001      0.0001     0.0001     0.0001     0.0001     0.0001     0.0001     0.0001     0.0001

LESTATA      -0.222814   -0.324669  -0.151093  -0.191678  -0.222597  -0.209908  -0.222810  -0.201590  -0.269278
                0.0001      0.0001     0.0028     0.0001     0.0001     0.0001     0.0001     0.0001     0.0001

AGERNOA      -0.371311   -0.546634  -0.251636  -0.319519  -0.370792  -0.349798  -0.371297  -0.335936  -0.448733
                0.0001      0.0001     0.0001     0.0001     0.0001     0.0001     0.0001     0.0001     0.0001

MRTA         -0.358031   -0.527610  -0.252616  -0.307568  -0.357500  -0.337259  -0.357987  -0.323894  -0.432657
                0.0001      0.0001     0.0001     0.0001     0.0001     0.0001     0.0001     0.0001     0.0001
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APPENDIX 3

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               AUSTIN INDEPENDENT SCHOOL DISTRICT            1ST GRD RET PRED                 11
              OFFICE OF RESEARCH AND EVALUATION                  SA-JF068 0301
              SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                  X
              1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                         X
                                 DISCRIMINANT ANALYSIS                 14:52 THURSDAY, FEBRUARY 26, 1987

         DISCRIMINANT ANALYSIS     WITHIN CORRELATION COEFFICIENTS   /   PROBABILITY > |R|

                                            RETSTAT = 1

VARIABLE       BLACK    HISPANIC        SEXB     LESTATB     AGERNDB        MRTB    SCHDAYSB        SEXH     LESTATH

SCHDAYSA   -0.371949   -0.547542   -0.252068   -0.319967   -0.371429   -0.350398   -0.371934   -0.336513   -0.449503
              0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001
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      AUSTIN INDEPENDENT SCHOOL DISTRICT            1ST GRD RET PRED                          12
     OFFICE OF RESEARCH AND EVALUATION                  SA-JF068 0301
     SCHOOLS  101-160  GRADE 01 ACTIVE AT EOY 1984                 X
     1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                        X
                        DISCRIMINANT ANALYSIS              14:52 THURSDAY, FEBRUARY 26, 1987

  DISCRIMINANT ANALYSIS     WITHIN CORRELATION COEFFICIENTS   /   PROBABILITY > |R|

                                      RETSTAT = 1

VARIABLE      AGERNDH      MRTH     SCHDAYSH       SEXA    LISTATA    AGERNDA       MRTA   SCHDAYSA

BLACK       -0.571710 -0.531740  -0.573013  -0.294815  -0.222818  -0.371311  -0.358001  -0.371949
               0.0001    0.0001     0.0001     0.0001     0.0001     0.0001     0.0001     0.0001

HISPANIC     0.997637  0.927889   0.999911  -0.433995  -0.328009  -0.546604  -0.527010  -0.547542
               0.0001    0.0001     0.0001     0.0001     0.0001     0.0001     0.0001     0.0001

SEXB        -0.337445 -0.306358  -0.338328  -0.199795  -0.151003  -0.251636  -0.242616  -0.252068
               0.0001    0.0001     0.0001     0.0001     0.0028     0.0001     0.0001     0.0001

LISTATB     -0.491810 -0.457426  -0.492931  -0.253613  -0.191678  -0.319419  -0.307968  -0.319967
               0.0001    0.0001     0.0001     0.0001     0.0001     0.0001     0.0001     0.0001

AGERNDB     -0.570911 -0.530996  -0.572212  -0.294403  -0.222507  -0.370792  -0.357500  -0.371429
               0.0001    0.0001     0.0001     0.0001     0.0001     0.0001     0.0001     0.0001

MRTB        -0.538586 -0.500931  -0.539813  -0.277734  -0.209908  -0.349798  -0.337259  -0.350398
               0.0001    0.0001     0.0001     0.0001     0.0001     0.0001     0.0001     0.0001

SCHDAYSB    -0.571687 -0.531719  -0.572990  -0.294804  -0.222810  -0.371297  -0.357987  -0.371934
               0.0001    0.0001     0.0001     0.0001     0.0001     0.0001     0.0001     0.0001

SEXH         0.608457  0.586412   0.614671  -0.266728  -0.201590  -0.335936  -0.323894  -0.336513
               0.0001    0.0001     0.0001     0.0001     0.0001     0.0001     0.0001     0.0001

LISTATH      0.819267  0.714740   0.820572  -0.356286  -0.269278  -0.448733  -0.432647  -0.449503
               0.0001    0.0001     0.0001     0.0001     0.0001     0.0001     0.0001     0.0001

AGERNDH      1.000000  0.929196   0.997612  -0.432969  -0.327234  -0.545313  -0.525765  -0.546248
               0.0000    0.0001     0.0001     0.0001     0.0001     0.0001     0.0001     0.0001

MRTH         0.929196  1.000000   0.928428  -0.402699  -0.304356  -0.507188  -0.489007  -0.508058
               0.0001    0.0000     0.0001     0.0001     0.0001     0.0001     0.0001     0.0001

SCHDAYSH     0.997612  0.928428   1.000000  -0.433956  -0.327980  -0.546555  -0.526963  -0.547493
               0.0001    0.0001     0.0000     0.0001     0.0001     0.0001     0.0001     0.0001

SEXA        -0.432969 -0.402699  -0.433956   1.000000   0.503644   0.789058   0.756809   0.792284
               0.0001    0.0001     0.0001     0.0000     0.0001     0.0001     0.0001     0.0001

LISTATA     -0.327234 -0.304356  -0.327980   0.503644   1.000000   0.600984   0.554199   0.598100
               0.0001    0.0001     0.0001     0.0001     0.0000     0.0001     0.0001     0.0001

AGERNDA     -0.545313 -0.507188  -0.546555   0.789058   0.600984   1.000000   0.958931   0.998265
               0.0001    0.0001     0.0001     0.0001     0.0001     0.0000     0.0001     0.0001

MRTA        -0.525765 -0.489007  -0.526963   0.756809   0.554199   0.958931   1.000000   0.962539
               0.0001    0.0001     0.0001     0.0001     0.0001     0.0001     0.0000     0.0001
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                         AUSTIN INDEPENDENT SCHOOL DISTRICT            1ST GRD RET PRED                        13
                        OFFICE OF RESEARCH AND EVALUATION                SA-JF068 0301
                        SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984               X
                        1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                      X
                                      DISCRIMINANT ANALYSIS             14:52 THURSDAY, FEBRUARY 26, 1987

                  DISCRIMINANT ANALYSIS     WITHIN CORRELATION COEFFICIENTS   /   PROBABILITY > |R|

                                              RETSTAT = 1

VARIABLE      AGERNDH        MRTH    SCHDAYSH        SEXA     LISTATA     AGERNDA        MRTA    SCHDAYSA

SCHDAYSA    -0.546248   -0.508058   -0.547493    0.792284    0.598100    0.998265    0.962539    1.000000
               0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0000
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AUSTIN INDEPENDENT SCHOOL DISTRICT                     1ST GRD RET PRED                     14
OFFICE OF RESEARCH AND EVALUATION                       SA-JF068 0301
SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                       X
1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                              X
                     DISCRIMINANT ANALYSIS              14:52 THURSDAY, FEBRUARY 26, 1987

DISCRIMINANT ANALYSIS    POOLED COVARIANCE MATRIX    DF =  3372


VARIABLE               BLACK            HISPANIC                SEXB             LISTATB             AGERNDB                MRTB

BLACK             0.16543730         -0.06158528          0.08344228          0.11974880          1.10124472          7.50307651
HISPANIC         -0.06158528          0.20021044         -0.03132530         -0.04510762         -0.40848949         -2.68264491
SEXB              0.08344228         -0.03132530          0.09463266          0.06169428          0.55849865          3.70793198
LISTATB           0.11974880         -0.04510762          0.06169428          0.12854706          0.80231604          5.14908738
AGERNDB           1.10124472         -0.40848949          0.55849865          0.80231604          7.37414137         50.21244171
MRTB              7.50307651         -2.68264491          3.70793198          5.14908738         50.21244171        377.53854065
SCHDAYSB         45.72496290        -17.02117645         23.05453417         33.06715787        304.35383231       2074.48603915
SEXH             -0.03153598          0.10211165         -0.01605093         -0.02311876         -0.20911895         -1.36943364
LISTATH          -0.04187946          0.13327759         -0.02137318         -0.03081770         -0.27738843         -1.79438863
AGERNDH          -0.41154275          1.34336657         -0.20919533         -0.30115804         -2.73047554        -17.98359742
MRTH             -2.95253492          9.95577277         -1.49293985         -2.14470705        -19.63295371       -132.33011402
SCHDAYSH        -17.02828432         55.36650853         -8.66121337        -12.47180166       -112.94821045       -741.83750764
SEXA             -0.05281304         -0.07101273         -0.02657190         -0.03809561         -0.35191675         -2.42275216
LISTATA          -0.02177775         -0.02967974         -0.01100962         -0.01581476         -0.14482403         -0.97699524
AGERNDA          -0.67935457         -0.90638979         -0.34086889         -0.48815400         -4.53202098        -31.55731933
MRTA             -6.00137921         -7.96043142         -3.00505665         -4.29991974        -40.06970183       -281.35906284
SCHDAYSA        -28.74638299        -38.37142696        -14.42602334        -20.66072623       -191.75575761      -1334.31371202

VARIABLE            SCHDAYSB                SEXH             LISTATH             AGERNDH                MRTH            SCHDAYSH

BLACK            45.72496290         -0.03153598         -0.04187946         -0.41154275         -2.95253492        -17.02828432
HISPANIC        -17.02117645          0.10211165          0.13327759          1.34336657          9.95577277         55.36650853
SEXB             23.05453417         -0.01605093         -0.02137318         -0.20919533         -1.49293985         -8.66121337
LISTATB          33.06715787         -0.02311876         -0.03081770         -0.30115804         -2.14470705        -12.47180166
AGERNDB         304.35383231         -0.20911895         -0.27738843         -2.73047554        -19.63295371       -112.94821045
MRTB           2074.48603915         -1.36943364         -1.79438863        -17.98359742       -132.33011402       -741.83750764
SCHDAYSB      12639.01316900         -8.71602552        -11.57473005       -113.74391964       -816.04257263      -4706.34320285
SEXH             -8.71602552          0.12343377          0.06389720          0.69070349          5.13061870         28.23813852
LISTATH         -11.57473005          0.06389720          0.15128049          0.90427437          6.25787152         36.82844013
AGERNDH        -113.74391964          0.69070349          0.90427437          9.07550800         67.08372399        371.49864968
MRTH           -816.04257263          5.13061870          6.25787152         67.08372399        537.71538619       2754.15611368
SCHDAYSH      -4706.34320285         28.23813852         36.82844013        371.49864968       2754.15611368      15312.43254786
SEXA            -14.59698538         -0.03620704         -0.04719541         -0.47662563         -3.54078621        -19.63819911
LISTATA          -6.01909193         -0.01517370         -0.02001213         -0.19865952         -1.44417019         -8.20692981
AGERNDA        -187.76765726         -0.46140823         -0.59728282         -6.09326022        -45.82954561       -250.67242143
MRTA          -1658.73565044         -4.04750803         -5.21179319        -53.57897581       -406.71850542      -2201.64794398
SCHDAYSA      -7945.24774911        -19.53531396        -25.29883966       -257.92900647      -1938.51426259     -10612.01607973
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APPENDIX A
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AUSTIN INDEPENDENT SCHOOL DISTRICT            1ST GRD RET PRED                 15
OFFICE OF RESEARCH AND EVALUATION                 SA-JF068 0301
SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                 X
1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                        X
                    DISCRIMINANT ANALYSIS                  14:52 THURSDAY, FEBRUARY 26, 1987

DISCRIMINANT ANALYSIS    POOLED COVARIANCE MATRIX    DF =  3372


VARIABLE              SEXA          LISTATA          AGERNDA             MRTA           SCHDAYSA

BLACK          -0.05281304      -0.02177775      -0.67935457      -6.00137921      -28.74638299
HISPANIC       -0.07101273      -0.02967974      -0.90638979      -7.96043142      -38.37142696
SEXB           -0.02657190      -0.01100962      -0.34086889      -3.00505665      -14.42602334
LISTATB        -0.03805561      -0.01581476      -0.48815400      -4.29991974      -20.66072623
AGERNDB        -0.35191675      -0.14482403      -4.53202098     -40.06970183     -191.75575761
MRTB           -2.42275216      -0.97699524     -31.55731933    -281.35906284    -1334.31371202
SCHDAYSB      -14.59658538      -6.01909193    -187.76769726   -1658.73569044    -7945.24774911
SEXH           -0.03620704      -0.01517370      -0.46140823      -4.04750803      -19.53531396
LISTATH        -0.04719541      -0.02001213      -0.59728282      -5.21179319      -25.29883966
AGERNDH        -0.47662563      -0.19865952      -6.09326022     -53.57897581     -257.92900647
MRTH           -3.54078621      -1.44417019     -45.82954561    -406.71850542    -1938.51426259
SCHDAYSH      -19.63819911      -8.20692981    -250.67242143   -2201.64794398   -10612.01607973
SEXA            0.18907098       0.02752641       0.81812579       6.96949551       34.27187621
LISTATA         0.02752641       0.09254537       0.34736870       2.42940549       14.20818243
AGERNDA         0.81812579       0.34736870      10.44058884      91.46260138      438.92625810
MRTA            6.96949551       2.42940549      91.46260138     859.94308936     3865.44615579
SCHDAYSA       34.27187621      14.20818243     438.92625810    3865.44615579    18579.23660508
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APPENDIX A
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                         AUSTIN INDEPENDENT SCHOOL DISTRICT              1ST GRD RET PRED                       16
                         OFFICE OF RESEARCH AND EVALUATION                   SA-JF068 0301
                         SCHOOLS  101-158  GRADE 01 ACTIVE AT EOY 1984                   X
                         1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                          X
                                               DISCRIMINANT ANALYSIS             14:52 THURSDAY, FEBRUARY 26, 1987

DISCRIMINANT ANALYSIS    PARTIAL CORRELATION COEFFICIENTS COMPUTED FROM POOLED COVARIANCE MATRIX    /     PROB > |R|


VARIABLE        BLACK    HISPANIC        SEXB     LISTATB     AGERNDB        MRTB    SCHDAYSB        SEXH     LISTATH

BLACK        1.000000   -0.338389    0.666882    0.821152    0.997037    0.949384    0.999954   -0.220685   -0.264724
               0.0000      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001

HISPANIC    -0.338389    1.000000   -0.227579   -0.281174   -0.336188   -0.308560   -0.338368    0.649554    0.765812
               0.0001      0.0000      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001

SEXB         0.666882   -0.227579    1.000000    0.559362    0.668568    0.620341    0.666621   -0.148512   -0.178631
               0.0001      0.0001      0.0000      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001

LISTATB      0.821152   -0.281174    0.559362    1.000000    0.824060    0.739126    0.820369   -0.183534   -0.220993
               0.0001      0.0001      0.0001      0.0000      0.0001      0.0001      0.0001      0.0001      0.0001

AGERNDB      0.997037   -0.336188    0.668568    0.824060    1.000000    0.951645    0.996934   -0.219190   -0.262628
               0.0001      0.0001      0.0001      0.0001      0.0000      0.0001      0.0001      0.0001      0.0001

MRTB         0.949384   -0.308560    0.620341    0.739126    0.951645    1.000000    0.949671   -0.200606   -0.237435
               0.0001      0.0001      0.0001      0.0001      0.0001      0.0000      0.0001      0.0001      0.0001

SCHDAYSB     0.999954   -0.338366    0.666621    0.820369    0.996934    0.949671    1.000000   -0.220671   -0.264705
               0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0000      0.0001      0.0001

SEXH        -0.220685    0.649554   -0.148512   -0.183534   -0.219190   -0.200606   -0.220671    1.000000    0.467599
               0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0000      0.0001

LISTATH     -0.264724    0.765812   -0.178631   -0.220993   -0.262628   -0.237435   -0.264705    0.467599    1.000000
               0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0000

AGERNDH     -0.335863    0.996588   -0.225733   -0.278823   -0.333770   -0.307228   -0.335843    0.652588    0.771744
               0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001

MRTH        -0.313042    0.959523   -0.209284   -0.257965   -0.311784   -0.293699   -0.313026    0.629762    0.693839
               0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001

SCHDAYSH    -0.338323    0.999958   -0.227529   -0.281110   -0.336126   -0.308536   -0.338302    0.649527    0.765191
               0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001

SEXA        -0.298615   -0.364990   -0.198051   -0.244361   -0.298038   -0.286758   -0.298603   -0.237008   -0.279059
               0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001

LISTATA     -0.176003   -0.218042   -0.117645   -0.144995   -0.175310   -0.165285   -0.175994   -0.141970   -0.169132
               0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001

AGERNDA     -0.516913   -0.626916   -0.342429   -0.421370   -0.516504   -0.502640   -0.516894   -0.406449   -0.475254
               0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001

MRTA        -0.503152   -0.606678   -0.333117   -0.403973   -0.503182   -0.493794   -0.503136   -0.392858   -0.456942
               0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001
```

```
            AUSTIN INDEPENDENT SCHOOL DISTRICT            1ST GRD RET PRED                    17
            OFFICE OF RESEARCH AND EVALUATION                SA-JF068 0301
            SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                X
            1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                       X
                                  DISCRIMINANT ANALYSIS            14:52 THURSDAY, FEBRUARY 26, 1987

DISCRIMINANT ANALYSIS    PARTIAL CORRELATION COEFFICIENTS COMPUTED FROM POOLED COVARIANCE MATRIX   /    PROB > |R|


VARIABLE       BLACK    HISPANIC        SEXB     LISTATB     AGERNDB        MRTB    SCHDAYSB        SEXH     LISTATH

SCHDAYSA   -0.518505   -0.629145   -0.344043   -0.422767   -0.518058   -0.503806   -0.518486   -0.407934   -0.477194
              0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001
              AUSTIN INDEPENDENT SCHOOL DISTRICT              1ST GRD RET PRED                    18
             OFFICE OF RESEARCH AND EVALUATION                 SA-JF068 0301
             SCHOOLS  101-160  GRADE 01 ACTIVE AT EOY 1984                 X
             1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                        X
                                 DISCRIMINANT ANALYSIS            14:52 THURSDAY, FEBRUARY 26, 1987

DISCRIMINANT ANALYSIS    PARTIAL CORRELATION COEFFICIENTS COMPUTED FROM POOLED COVARIANCE MATRIX    /    PROB > |R|


VARIABLE      AGERNDH        MRTH     SCHDAYSH        SEXA     LISTATA     AGERNDA        MRTA    SCHDAYSA

BLACK       -0.335863   -0.313042   -0.338323   -0.298615   -0.176003   -0.516913   -0.503152   -0.518505
               0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001

HISPANIC     0.996588    0.959523    0.999958   -0.364990   -0.218042   -0.626916   -0.606678   -0.629145
               0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001

SEXB        -0.225733   -0.209289   -0.227529   -0.198651   -0.117645   -0.342929   -0.333117   -0.344043
               0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001

LISTATB     -0.278823   -0.257965   -0.281110   -0.244361   -0.144995   -0.421370   -0.408973   -0.422767
               0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001

AGERNDB     -0.333770   -0.311784   -0.336126   -0.298038   -0.175310   -0.516504   -0.503182   -0.518058
               0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001

MRTB        -0.307228   -0.293699   -0.308536   -0.286758   -0.165285   -0.502640   -0.493794   -0.503806
               0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001

SCHDAYSB    -0.335843   -0.313026   -0.338302   -0.296603   -0.175994   -0.516894   -0.503136   -0.518486
               0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001

SEXH         0.652588    0.629762    0.649527   -0.237008   -0.141970   -0.406449   -0.392858   -0.407934
               0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001

LISTATH      0.771744    0.693839    0.765191   -0.279059   -0.169132   -0.475254   -0.456942   -0.477194
               0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001

AGERNDH      1.000000    0.960297    0.996551   -0.363856   -0.216769   -0.625967   -0.606491   -0.628132
               0.0000      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001

MRTH         0.960297    1.000000    0.959821   -0.351165   -0.204722   -0.611655   -0.598112   -0.613308
               0.0001      0.0000      0.0001      0.0001      0.0001      0.0001      0.0001      0.0001

SCHDAYSH     0.996551    0.959821    1.000000   -0.364978   -0.218012   -0.626934   -0.606724   -0.629161
               0.0001      0.0001      0.0000      0.0001      0.0001      0.0001      0.0001      0.0001

SEXA        -0.363856   -0.351165   -0.364978    1.000000    0.208094    0.582298    0.546580    0.578245
               0.0001      0.0001      0.0001      0.0000      0.0001      0.0001      0.0001      0.0001

LISTATA     -0.216769   -0.204722   -0.218012    0.208094    1.000000    0.353387    0.272325    0.342647
               0.0001      0.0001      0.0001      0.0001      0.0000      0.0001      0.0001      0.0001

AGERNDA     -0.625967   -0.611655   -0.626934    0.582298    0.353387    1.000000    0.965264    0.996587
               0.0001      0.0001      0.0001      0.0001      0.0001      0.0000      0.0001      0.0001

MRTA        -0.606491   -0.598112   -0.606724    0.546580    0.272325    0.965264    1.000000    0.967054
               0.0001      0.0001      0.0001      0.0001      0.0001      0.0001      0.0000      0.0001
```

```
                                  AUSTIN INDEPENDENT SCHOOL DISTRICT            1ST GRD RET PRED                          19
                                  CFFICE OF RESEARCH AND EVALUATION               SA-JF068 0301
                                  SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                X
                                  1984 SCHCOL YEAR  TO  1985 SCHOOL YEAR                       X
                                                   DISCRIMINANT ANALYSIS               14:52 THURSDAY, FEBRUARY 26, 1987

DISCRIMINANT ANALYSIS     PARTIAL CCRRELATION COEFFICIENTS COMPUTED FROM POOLED COVARIANCE MATRIX    /     PROB > |R|


VARIABLE      AGERNOH        MRTH     SCHDAYSH         SEXA      LISTATA      AGERNDA         MRTA     SCHDAYSA

SCHDAYSA    -0.628132   -0.613308    -0.629161     0.578245     0.342647     0.996587     0.967054     1.000000
               0.0001      0.0001       0.0001       0.0001       0.0001       0.0001       0.0001       0.0000
```

```
AUSTIN INDEPENDENT SCHOOL DISTRICT            1ST GRD RET PRED                    20
OFFICE OF RESEARCH AND EVALUATION              SA-JF06B 0301
SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984               X
1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                      X
                   DISCRIMINANT ANALYSIS            14:52 THURSDAY, FEBRUARY 26, 1987

DISCRIMINANT ANALYSIS      POOLED COVARIANCE MATRIX INFORMATION

          COVARIANCE       NATURAL LOG OF DETERMINANT
          MATRIX RANK      OF THE COVARIANCE MATRIX

              17                 -16.91834211
```

Matrix is of full rank (rank = # of variables)

i.e. The inverse of the matrix [illegible]
can be found, which is needed for discriminating
[illegible]

and i.e. there is no linear dependence among any of the
variables, that is, no variable is a linear
combination of any other variables. (Good news)

```
AUSTIN INDEPENDENT SCHOOL DISTRICT           1ST GRD RET PRED                         21
OFFICE OF RESEARCH AND EVALUATION              SA-JF068 0301
SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984              X
1984 SCHCOL YEAR  TO  1985 SCHOOL YEAR                     X
                       DISCRIMINANT ANALYSIS            14:52 THURSDAY, FEBRUARY 26, 1987

CISCRIMINANT ANALYSIS     PAIRWISE SQUARED GENERALIZED DISTANCES BETWEEN GROUPS

                      2                  -1
                      D (I|J) = (X - X )' COV  (X - X ) - 2 LN PRIOR
                                  I   J          I   J                J

                           GENERALIZED SQUARED DISTANCE TO RETSTAT

                  FROM RETSTAT                       0                  1

                             0              0.24499847         8.18229987
                             1              4.10674851         4.32054984
```

```
AUSTIN INDEPENDENT SCHOOL DISTRICT            1ST GRD RET PRED                    22
OFFICE OF RESEARCH AND EVALUATION               SA-JF068 0301
SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984               X
1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                      X
                 DISCRIMINANT ANALYSIS             14:52 THURSDAY, FEBRUARY 26, 1987

     DISCRIMINANT ANALYSIS          LINEAR DISCRIMINANT FUNCTION

                              -1 _                                      -1 _
CONSTANT = -.5 X' COV     X  + LN PRIOR        COEFFICIENT VECTOR = COV   X
                 J            J           J                                 J

                          RETSTAT
                          NOT    0
                          RETAINED              RETAINED 1

             CONSTANT    -39837.39429696     -39852.16082288
             BLACK        79672.54771684      79677.80003538
             HISPANIC     79692.77599753      79726.60789317
             SEXB             0.07778676          0.18768798
             LISTATB         -0.17325990         -0.41805058
             AGERNDB         -0.59269722         -1.43009097
             MRTB            -0.11777082         -0.28416363
             SCHDAYSB         0.05049131          0.12182809
             SEXH             0.30391546          0.73330317
             LISTATH          0.15962599          0.38515397
             AGERNDH         -1.01576960         -2.45090222
             MRTH            -0.14721067         -0.35519764
             SCHDAYSH        -0.00566804         -0.01367614
             SEXA            -0.84322008         -0.36164939
             LISTATA         93.50588154         93.89985743
             AGERNDA        119.44614664        118.71565791
             MRTA            -2.54422305         -2.66839272
             SCHDAYSA       285.48044346        285.56055092
```

Y intercept

B = Black

H - Hispanic

A = Anglo/other

Mix of categorical and noncategorical variables. Range of values possible for each varies. Ethnicity, age, & days attending appearing to be strongest predictors. Then low income.

Use these coefficients to write your regression equation

NOTE: Coefficient values must be interpreted cautiously. Difference in numbers should be interpreted cautiously. Beta weights are more standardized but not available through SAS.

Attachment A-7

Discriminant Analysis By Ethnicity

1983-84, 1984-85

Black = page 51

Anglo = page 69

Hispanic = page 84

```
1        S A S   L O G   VSE SAS 82.4         VSE 3.1 JOB EVISAS                                    15:01 FRIDAY, FEBRUARY 27, 1987

NOTE: THE JOB EVISAS HAS BEEN RUN UNDER RELEASE 82.4 OF SAS
      AT AUSTIN INDEPENDENT SCHOOL DISTRICT (01986001).

NOTE: CPUID   VERSION = FF   SERIAL = 013553  MODEL = 4341 .

NOTE: NO OPTIONS SPECIFIED.

1                                                                                   00000130
2          OPTIONS ERRORS = 0;                                                      00000140
3                                                                                   00000150
4          TITLE1 AUSTIN INDEPENDENT SCHOOL DISTRICT           1ST GRD RET PRED ;   00000160
5          TITLE2 OFFICE OF RESEARCH AND EVALUATION               SA-JF068 0301;    00000170
6          TITLE3 SCHOOLS  101-168  GRADE 01 ACTIVE AT.EOY 1984                X;   00000180
7          TITLE4 1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                       X;   00000190
8          TITLE5 DISCRIMINANT ANALYSIS;                                            00000200
9          TITLE6 '   ';                                                            00000210
10         TITLE7 CALIBRATION GROUP IS ONLY BLACK;                                  00000220
11         TITLE8 VALIDATION GROUP IS ONLY BLACK;                                   00000230
12                                                                                  00000240
13         *ROC CORR   DATA = FRYYEAR1;                                             00000250
14         *   VAR RETSTAT;                                                         00000260
15         *   WITH  SEX  LISTAT  BLACK  HISPANIC  ANGOTHER  AGERND                 00000270
16         *         MRT  ITBSR  ITBSM  ITBSL  SCHDAYS;                             00000280
17         *                                                                        00000290
18         *ROC TABULATE   F=7  DATA = FRYYEAR1;                                    00000300
19         *   CLASS RETSTAT;                                                       00000310
20         *   VAR MRT  ITBSR  ITBSM  ITBSL;                                        00000320
21         *   TABLE  RETSTAT  ALL,                                                 00000330
22         *          (MRT  ITBSR  ITBSL  ITBSM)*(N  MEAN*F=7.1);                   00000340
23         *   KEYLABEL  ALL = 'TOTAL';                                             00000350
24                                                                                  00000360
25         DATA FRYTEST1;                                                           00000370
26             SET FRYYEAR1;                                                        00000380
27             IF MRT GT 0;                                                         00000390
28             IF SCHDAYS GE 155  THEN SCHDAYS = SCHDAYS + 15;                      00000400
29             IF BLACK = 1;                                                        00000410
30                                                                                  00000420
31             SEXB = 0;  LISTATB = 0;  AGERNDB = 0;  MRTB = 0;  SCHDAYSB = 0;      00000430
32             SEXH = 0;  LISTATH = 0;  AGERNDH = 0;  MRTH = 0;  SCHDAYSH = 0;      00000440
33             SEXA = 0;  LISTATA = 0;  AGERNDA = 0;  MRTA = 0;  SCHDAYSA = 0;      00000450
34                                                                                  00000460
35             IF BLACK = 1      THEN GO TO CHKBLACK;                               00000470
36             IF HISPANIC = 1   THEN GO TO CHKHIS;                                 00000480
37                                                                                  00000490
38             SEXA     = SEX;                                                      00000500
39             LISTATA  = LISTAT;                                                   00000510
40             AGERNDA  = AGERND;                                                   00000520
41             MRTA     = MRT;                                                      00000530
42             SCHDAYSA = SCHDAYS;                                                  00000540
43             GO TO KEEPIT;                                                        00000550
44                                                                                  00000560
45           CHKBLACK:                                                              00000570
46             SEXB     = SEX;                                                      00000580
47             LISTATB  = LISTAT;                                                   00000590
48             AGERNDB  = AGERND;                                                   00000600
49             MRTB     = MRT;                                                      00000610
50             SCHDAYSB = SCHDAYS;                                                  00000620
51             GO TO KEEPIT;                                                        00000630
```

86.30

Attachment A-7
Black only

Blacks

almost even <

Age
attendance
LI

APPENDIX A
51

Attachment A-7

```
2       S A S   L O G   VSE SAS 82.4        VSE 3.1 JOB EVISAS                          15:01 FRIDAY, FEBRUARY 27, 1987
52                                                                                  00000640
53           CHKHIS:                                                                00000650
54             SEXH     = SEX;                                                      00000660
55             LISTATH  = LISTAT;                                                   00000670
56             AGERNDH  = AGERND;                                                   00000680
57             MRTH     = MRT;                                                      00000690
58             SCHDAYSH = SCHDAYS;                                                  00000700
59             GO TO KEEPIT;                                                        00000710
60                                                                                  00000720
61           KEEPIT:                                                                00000730
62             KEEP STUID  RETSTAT  BLACK  HISPANIC                                 00000740
63                  SEXB  LISTATB  AGERNDB  MRTB  SCHDAYSB                          00000750
64                  SEXH  LISTATH  AGERNDH  MRTH  SCHDAYSH                          00000760
65                  SEXA  LISTATA  AGERNDA  MRTA  SCHDAYSA;                         00000770
66                                                                                  00000780
67                                                                                  00000790

NOTE: DATA SET USER010.FRYTEST1 HAS 709 OBSERVATIONS AND 19 VARIABLES. 50 OBS/TRK.
NOTE: THE DATA STATEMENT USED 18.09 SECONDS AND 330K.

68         DATA FRYTEST2;                                                           00000800
69             SET FRYYEARA;                                                        00000810
70             IF MRT GT 0;                                                         00000820
71             IF BLACK = 1;                                                        00000830
72                                                                                  00000840
73             SEXB = 0;  LISTATB = 0;  AGERNDB = 0;  MRTB = 0;  SCHDAYSB = 0;      00000850
74             SEXH = 0;  LISTATH = 0;  AGERNDH = 0;  MRTH = 0;  SCHDAYSH = 0;      00000860
75             SEXA = 0;  LISTATA = 0;  AGERNDA = 0;  MRTA = 0;  SCHDAYSA = 0;      00000870
76                                                                                  00000880
77             IF BLACK = 1      THEN GO TO CHKBLACK;                               00000890
78             IF HISPANIC = 1   THEN GO TO CHKHIS;                                 00000900
79                                                                                  00000910
80             SEXA     = SEX;                                                      00000920
81             LISTATA  = LISTAT;                                                   00000930
82             AGERNDA  = AGERND;                                                   00000940
83             MRTA     = MRT;                                                      00000950
84             SCHDAYSA = SCHDAYS;                                                  00000960
85             GO TO KEEPIT;                                                        00000970
86                                                                                  00000980
87           CHKBLACK:                                                              00000990
88             SEXB     = SEX;                                                      00001000
89             LISTATB  = LISTAT;                                                   00001010
90             AGERNDB  = AGERND;                                                   00001020
91             MRTB     = MRT;                                                      00001030
92             SCHDAYSB = SCHDAYS;                                                  00001040
93             GO TO KEEPIT;                                                        00001050
94                                                                                  00001060
95           CHKHIS:                                                                00001070
96             SEXH     = SEX;                                                      00001080
97             LISTATH  = LISTAT;                                                   00001090
98             AGERNDH  = AGERND;                                                   00001100
99             MRTH     = MRT;                                                      00001110
100            SCHDAYSH = SCHDAYS;                                                  00001120
101            GO TO KEEPIT;                                                        00001130
102                                                                                 00001140
103          KEEPIT:                                                                00001150
104            KEEP STUID  RETSTAT  BLACK  HISPANIC                                 00001160
105                 SEXB  LISTATB  AGERNDB  MRTB  SCHDAYSB                          00001170
```

```
3       S A S   L O G   VSE SAS 82.4        VSE 3.1 JOB EVISAS                          15:01 FRIDAY, FEBRUARY 27, 1987
106                 SEXH  LISTATH  AGERNDH  MRTH  SCHDAYSH                       00001180
107                 SEXA  LISTATA  AGERNDA  MRTA  SCHDAYSA;                      00001190
108                                                                              00001200
109         PROC DISCRIM   DATA = FRYTEST1                                       00001210

NOTE: DATA SET USER010.FRYTEST2 HAS 740 OBSERVATIONS AND 19 VARIABLES. 50 OBS/TRK.
NOTE: THE DATA STATEMENT USED 12.26 SECONDS AND 306K.

110                         S   POOL = YES    SLPOOL = .05   WCOV   WCORR        00001220
111                         PCOV  PCORR   LISTERR   OUT = DERIVED                00001230
112                         TESTDATA = FRYTEST2   TESTLISTERR;                   00001240
113              CLASS RETSTAT;                                                  00001250
114          *   VAR  BLACK  HISPANIC                                            00001260
115          *        SEXB  LISTATB  AGERNDB  MRTB  SCHDAYSB                     00001270
116          *        SEXH  LISTATH  AGERNDH  MRTH  SCHDAYSH                     00001280
117          *        SEXA  LISTATA  AGERNDA  MRTA  SCHDAYSA;                    00001290
118              VAR  SEXB  LISTATB  AGERNDB  MRTB  SCHDAYSB;                    00001300
119              ID STUID;                                                       00001310
120              PRIORS PROPORTIONAL;                                            00001320
121              TESTCLASS RETSTAT;                                              00001330
122              TESTID STUID;                                                   00001340
123                                                                              00001350
```

APPENDIX A
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```
   AUSTIN INDEPENDENT SCHOOL DISTRICT          1ST GRD RET PRED                    1
  OFFICE OF RESEARCH AND EVALUATION               SA-JF068 0301
  SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984              X
  1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                     X
                    DISCRIMINANT ANALYSIS               15:01 FRIDAY, FEBRUARY 27, 1987

                         CALIBRATION GROUP IS ONLY BLACK
                          VALIDATION GROUP IS ONLY BLACK

                    DISCRIMINANT ANALYSIS

      RETSTAT                FREQUENCY    PRIOR PROBABILITY

            0                   600          0.84626234

            1                   109          0.15373766
      -----                     ---          ----------
      TOTAL                     709          1.00000000
```

86.30

```
                     AUSTIN INDEPENDENT SCHOOL DISTRICT          1ST GRD RET PRED                              2
                    OFFICE OF RESEARCH AND EVALUATION               SA-JF068 0301
                    SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984              X
                    1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                     X
                                     DISCRIMINANT ANALYSIS             15:01 FRIDAY, FEBRUARY 27, 1987

                                          CALIBRATION GROUP IS ONLY BLACK
                                           VALIDATION GROUP IS ONLY BLACK

                                     DISCRIMINANT ANALYSIS     SIMPLE STATISTICS

                                                 RETSTAT = 0  NOT RETAINED
                                                                                                          STANDARD
VARIABLE           N                  SUM                   MEAN                VARIANCE                DEVIATION

SEXB             600         299.00000000             0.49833333              0.25041458               0.50041441
LISTATB          600         427.00000000             0.71166667              0.20553979               0.45336496
AGERNDB          600        4014.00000000             6.69000000              0.22397329               0.47325816
MRTB             600       28732.00000000            47.88666667            158.35441291              12.58389498
SCHDAYSB         600      165837.00000000           276.39500000              5.74521703               2.39691824
--------------------------------------------------------------------------------------------------------------

                                                 RETSTAT = 1  RETAINED

SEXB             109          59.00000000             0.54128440              0.25059463               0.50059428
LISTATB          109          87.00000000             0.79816514              0.16258919               0.40322350
AGERNDB          109         703.30000000             6.45229358              0.08474006               0.29110146
MRTB             109        3256.00000000            29.87155963             82.18705403               9.06570759
SCHDAYSB         109       30122.00000000           276.34862385              4.35881753               2.08777813
```

```
         AUSTIN INDEPENDENT SCHOOL DISTRICT            1ST GRD RET PRED                    3
        OFFICE OF RESEARCH AND EVALUATICN                 SA-JF068 0301
        SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984             X
        1984 SCHCOL YEAR  TO  1985 SCHOOL YEAR                    X
                          DISCRIMINANT ANALYSIS             15:01 FRIDAY, FEBRLARY 27, 1987

                             CALIBRATION GROUP IS ONLY BLACK
                              VALIDATION GROUP IS ONLY BLACK

                    DISCRIMINANT ANALYSIS     WITHIN COVARIANCE MATRICES

                           RETSTAT = 0               DF =    599

VARIABLE              SEXB          LISTATB          AGERNDB             MRTB          SCHDAYSB

SEXB            0.25041458       0.00703116       0.01400668      -0.40586533      -0.08030885
LISTATB         0.00703116       0.20553979       0.02766277      -1.34825821      -0.14468280
AGERNDB         0.01400668       0.02766277       0.22397329       1.01338898      -0.09487479
MRTB           -C.40586533      -1.34825821       1.01338898     158.35441291       3.36370618
SCHDAYSB       -0.08030885      -0.14468280      -0.09487479       3.36370618       5.74521703
-----------------------------------------------------------------------------------------------

                           RETSTAT = 1               DF =    108

VARIABLE              SEXB          LISTATB          AGERNDB             MRTB          SCHDAYSB

SEXB            0.25059463      -0.00084947       0.02420999       0.34794427       0.19843697
LISTATB        -0.00084947       0.16258919       0.02176351      -0.35C23785      -0.13268773
AGERNDB         0.02420999       0.02176351       0.08474006       0.06418620      -0.02765885
MRTB            0.34794427      -0.35023785       0.06418620      82.18705403       3.36926606
SCHDAYSB        C.19843697      -0.13268773      -0.02765885       3.36926606       4.35881753
```

Discrim loadings

ret stat [illegible]

```
   AUSTIN INDEPENDENT SCHOOL DISTRICT              1ST GRD RET PRED
  OFFICE OF RESEARCH AND EVALUATION                   SA-JF068 0301
  SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                   X
  1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                          X
                    DISCRIMINANT ANALYSIS                15:01 FRIDAY, FEBRUARY 27, 1987

                         CALIBRATION GROUP IS ONLY BLACK
                          VALIDATION GROUP IS ONLY BLACK

DISCRIMINANT ANALYSIS     WITHIN CORRELATION COEFFICIENTS   /   PROBABILITY > |R|

                                  RETSTAT = 0

       VARIABLE          SEXB      LISTATB      AGERNDB         MRTB     SCHDAYSB

       SEXB          1.000000     0.030992     0.059144    -0.064452    -0.066955
                       0.0000       0.4486       0.1479       0.1148       0.1013

       LISTATB       0.030992     1.000000     0.128929    -0.236325    -0.133142
                       0.4486       0.0000       0.0016       0.0001       0.0011

       AGERNDB       0.059144     0.128929     1.000000     0.170162    -0.083637
                       0.1479       0.0016       0.0000       0.0001       0.0406

       MRTB         -0.064452    -0.236325     0.170162     1.000000     0.111519
                       0.1148       0.0001       0.0001       0.0000       0.0062

       SCHDAYSB     -0.066955    -0.133142    -0.083637     0.111519     1.000000
                       0.1013       0.0011       0.0406       0.0062       0.0000

       ------------------------------------------------------------------------

                                  RETSTAT = 1

       VARIABLE          SEXB      LISTATB      AGERNDB         MRTB     SCHDAYSB

       SEXB          1.000000    -0.004208     0.166136     0.076669     0.189868
                       0.0000       0.9654       0.0843       0.4281       0.0480

       LISTATB      -0.004208     1.000000     0.185412    -0.095811    -0.157616
                       0.9654       0.0000       0.0536       0.3217       0.1017

       AGERNDB       0.166136     0.185412     1.000000     0.024322    -0.045510
                       0.0843       0.0536       0.0000       0.8018       0.6384

       MRTB          0.076669    -0.095811     0.024322     1.000000     0.178012
                       0.4281       0.3217       0.8018       0.0000       0.0640

       SCHDAYSB      0.189868    -0.157616    -0.045510     0.178012     1.000000
                       0.0480       0.1017       0.6384       0.0640       0.0000
```

(between variables)

(5%)

(3% of variance)

```
 AUSTIN INDEPENDENT SCHOOL DISTRICT           1ST GRD RET PRED                    5
OFFICE OF RESEARCH AND EVALUATION                SA-JF068 0301
SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                X
1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                       X
                    DISCRIMINANT ANALYSIS                15:01 FRIDAY, FEBRUARY 27, 1987

                  CALIBRATION GROUP IS ONLY BLACK
                   VALIDATION GROUP IS ONLY BLACK

DISCRIMINANT ANALYSIS    POOLED COVARIANCE MATRIX    DF =   707


VARIABLE              SEXB           LISTATB           AGERNDB              MRTB          SCHDAYSB

SEXB            0.25044208        0.00582733        0.01556532       -0.29071478       -0.03772816
LISTATB         0.00582733        0.19897874        0.02676161       -1.19580248       -0.14285046
AGERNDB         0.01556532        0.02676161        0.20270428        0.86839054       -0.08460701
MRTB           -0.29071478       -1.19580248        0.86839054      146.71922938        3.36455549
SCHDAYSB       -0.03772816       -0.14285046       -0.08460701        3.36455549        5.53343323
```

```
        AUSTIN INDEPENDENT SCHOOL DISTRICT            1ST GRD RET PRED                     6
       OFFICE OF RESEARCH AND EVALUATION                  SA-JF068 0301
       SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                  X
       1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                         X
                             DISCRIMINANT ANALYSIS              15:01 FRIDAY, FEBRUARY 27, 1987

                                 CALIBRATION GROUP IS ONLY BLACK
                                  VALIDATION GROUP IS ONLY BLACK

DISCRIMINANT ANALYSIS    PARTIAL CORRELATION COEFFICIENTS COMPUTED FROM POOLED COVARIANCE MATRIX   /    PROB > |R|


                    VARIABLE         SEXB      LISTATB      AGERNDB         MRTB    SCHDAYSB

                    SEXB         1.000000     0.026104     0.069083    -0.047959   -0.032049
                                   0.0000       0.4880       0.0662       0.2025      0.3945

                    LISTATB      0.026104     1.000000     0.133253    -0.221316   -0.136139
                                   0.4880       0.0000       0.0004       0.0001      0.0003

                    AGERNDB      0.069083     0.133253     1.000000     0.159236   -0.079887
                                   0.0662       0.0004       0.0000       0.0001      0.0336

                    MRTB        -0.047959    -0.221316     0.159236     1.000000    0.118083
                                   0.2025       0.0001       0.0001       0.0000      0.0016

                    SCHDAYSB    -0.032049    -0.136139    -0.079887     0.118083    1.000000
                                   0.3945       0.0003       0.0336       0.0016      0.0000
```

```
 AUSTIN INDEPENDENT SCHOOL DISTRICT            1ST GRD RET PRED                    7
OFFICE OF RESEARCH AND EVALUATION                  SA-JF068 0301
SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                  X
1984 SCHCOL YEAR  TO  1985 SCHOOL YEAR                         X
                    DISCRIMINANT ANALYSIS                  15:01 FRIDAY, FEBRUARY 27, 1987

               CALIBRATION GROUP IS ONLY BLACK
                VALIDATION GROUP IS ONLY BLACK

 DISCRIMINANT ANALYSIS     POOLED COVARIANCE MATRIX INFORMATION

         COVARIANCE        NATURAL LOG OF DETERMINANT
         MATRIX RANK       OF THE COVARIANCE MATRIX

              5                   1.95461823
```

```
     AUSTIN INDEPENDENT SCHOOL DISTRICT              1ST GRD RET PRED                      8
    OFFICE OF RESEARCH AND EVALUATION                   SA-JF068 0301
    SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                   X
    1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                           X
                       DISCRIMINANT ANALYSIS                    15:01 FRIDAY, FEBRUARY 27, 1987

                    CALIBRATION GROUP IS ONLY BLACK
                     VALIDATION GROUP IS ONLY BLACK

DISCRIMINANT ANALYSIS     PAIRWISE SQUARED GENERALIZED DISTANCES BETWEEN GROUPS

               2                          -1
              D (I|J) = (X - X )' COV   (X - X ) - 2 LN PRIOR
                          I   J           I   J              J

                  GENERALIZED SQUARED DISTANCE TO RETSTAT

         FROM RETSTAT                       0                  1

                   0               0.33385174         6.06778752
                   1               2.65662397         3.74501529
```

```
        AUSTIN INDEPENDENT SCHOOL DISTRICT            1ST GRD RET PRED                  9
       CFFICE OF RESEARCH AND EVALUATION                SA-JF068 0301
       SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984              X
       1984 SCHCOL YEAR  TO  1985 SCHCOL YEAR                     X
                    DISCRIMINANT ANALYSIS                 15:01 FRIDAY, FEBRUARY 27, 1987

                         CALIBRATICN GROUP IS ONLY BLACK
                          VALIDATICN GROUP IS ONLY BLACK

           DISCRIMINANT ANALYSIS         LINEAR DISCRIMINANT FUNCTION

                             -1 _                                         -1 _
   CONSTANT = -.5 X' COV    X  + LN PRIOR      COEFFICIENT VECTOR = COV    X
                  J          J          J                                   J

                                  RETSTAT

                                        0                    1

                 CONSTANT      -7374.38526724       -7381.65925891
                 SEXB              4.67537525           4.75572950
                 LISTATB          27.72198989          27.54301124
                 AGERNDB          54.84365054          54.23139029
                 MRTB             -0.95819891          -1.07985697
                 SCHDAYSB         52.11873913          52.17089699
```

86.30

```
     AUSTIN INDEPENDENT SCHOOL DISTRICT           1ST GRD RET PRED                   13
    OFFICE OF RESEARCH AND EVALUATION               SA-JF068 0301
    SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984               X
    1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                      X
                      DISCRIMINANT ANALYSIS           15:01 FRIDAY, FEBRUARY 27, 1987

                           CALIBRATION GROUP IS ONLY BLACK
                            VALIDATION GROUP IS ONLY BLACK

        DISCRIMINANT ANALYSIS     CLASSIFICATION SUMMARY FOR CALIBRATION DATA: USER010.FRYTEST1

GENERALIZED SQUARED DISTANCE FUNCTION:          POSTERIOR PROBABILITY OF MEMBERSHIP IN EACH RETSTAT:

 2              _        -1  _                                    2                             2
D (X) = (X-X )' COV   (X-X ) - 2 LN PRIOR       PR(J|X) = EXP(-.5 D (X)) / SUM EXP(-.5 D (X))
 J          J              J              J                        J           K             K

            NUMBER OF OBSERVATIONS AND PERCENTS CLASSIFIED INTO RETSTAT:
                                   FROM
                                RETSTAT           0           1     TOTAL

                                      0         581          19       600
                                              96.83        3.17    100.00

                                      1          75          34       109
                                              68.81       31.19    100.00

                          TOTAL                 656          53       709
                          PERCENT             92.52        7.48    100.00

                          PRIORS             0.8463      0.1537
```

83.54

15%

581
34
615

86.74%

```
AUSTIN INDEPENDENT SCHOOL DISTRICT          1ST GRD RET PRED                       17
OFFICE OF RESEARCH AND EVALUATION            SA-JF068 0301
SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984               X
1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                      X
                      DISCRIMINANT ANALYSIS          15:01 FRIDAY, FEBRUARY 27, 1987

                      CALIBRATION GROUP IS ONLY BLACK
                       VALIDATION GROUP IS ONLY BLACK

      DISCRIMINANT ANALYSIS     CLASSIFICATION SUMMARY FOR TEST DATA: USER010.FRYTEST2

GENERALIZED SQUARED DISTANCE FUNCTION:          POSTERIOR PROBABILITY OF MEMBERSHIP IN EACH RETSTAT:

 2                  -1                                         2                    2
D (X) = (X-X )' COV  (X-X ) - 2 LN PRIOR        PR(J|X) = EXP(-.5 D (X)) / SUM EXP(-.5 D (X))
 J          J            J              J                          J         K          K

          NUMBER OF OBSERVATIONS AND PERCENTS CLASSIFIED INTO RETSTAT:
                                       FROM
                                     RETSTAT          0        1    TOTAL

                                        0           599       24      623
                                                  96.15     3.85   100.00

                                        1            79       38      117
                                                  67.52    32.48   100.00

                                 TOTAL              678       62      740
                                 PERCENT          91.62     8.38   100.00

NOTE: DATA SET USER010.DERIVED HAS 9 OBSERVATIONS AND 9 VARIABLES. 110 OBS/TRK.
                                 PRIORS           0.8463  0.1537
NOTE: THE PROCEDURE DISCRIM USED 22.89 SECONDS AND 424K AND PRINTED PAGES 1 TO 17.

124        PROC PRINT  DATA = DERIVED;                                          00001360
125                                                                             00001370
126        *ATA FRYTEST1;                                                       00001380
127        *    SET FRYTEST1;                                                   00001390
128        *    IF _N_ GT 200  THEN DELETE;                                     00001400
129        *ROC PRINT;                                                          00001410
130        *                                                                    00001420
131        *ATA FRYTEST2;                                                       00001430
132        *    SET FRYTEST2;                                                   00001440
133        *    IF _N_ GT 200  THEN DELETE;                                     00001450
134        *ROC PRINT;                                                          00001460
135                                                                             00001470
```

86.30

81.85

86.08% accurate

```
                    AUSTIN INDEPENDENT SCHOOL DISTRICT            1ST GRD RET PRED                        18
                   OFFICE OF RESEARCH AND EVALUATION                SA-JF068 0301
                   SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                x
                   1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                       x
                                    DISCRIMINANT ANALYSIS                 15:01 FRIDAY, FEBRUARY 27, 1987

                                              CALIBRATION GROUP IS ONLY BLACK
                                               VALIDATION GROUP IS ONLY BLACK

          OBS    _TYPE_    RETSTAT    _LNDET_    _PRIOR_       SEXB      LISTATB      AGEKNDB      MRTB      SCHDAYSB

           1     PLPR         .          2          .           .           .            .           .           .
           2     MEAN         0          .      -0.3339     0.49833     0.71167      6.69000     47.8867     276.395
           3     MEAN         1          .      -3.7450     0.54128     0.79817      6.45229     29.8716     276.349
           4     STD          .          .          .       0.50044     0.44607      0.45023     12.1128       2.352
           5     RINV         .          .          .       1.00877    -0.00050     -0.07738      0.0583       0.019
           6     RINV         .          .          .      -0.00050     1.09524     -0.17874      0.2585       0.104
           7     RINV         .          .          .      -0.07738    -0.17874      1.07164     -0.2240       0.085
           8     RINV         .          .          .       0.05832     0.25852     -0.22398      1.1089      -0.112
           9     RINV         .          .          .       0.01919     0.10428      0.08524     -0.1118       1.035
NOTE: THE PROCEDURE PRINT USED 14.24 SECONDS AND 348K AND PRINTED PAGE 18.

136        PROC DELETE DATA=FRYTEST1  DERIVED  FRYTEST2;                                00001480

NOTE: THE PROCEDURE DELETE USED 10.53 SECONDS AND 284K.
NOTE: SAS USED 424K MEMORY.

NOTE: SAS INSTITUTE INC.
      SAS CIRCLE
      PO BOX 8000
      CARY, N.C.  27511-8000
```

```
          AUSTIN INDEPENDENT SCHOOL DISTRICT            1ST GRD RET PRED                 31
         OFFICE OF RESEARCH AND EVALUATION                  SA-JF068 0301
         SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                  X
         1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                         X
                             DISCRIMINANT ANALYSIS             14:52 THURSDAY, FEBRUARY 26, 1987

    DISCRIMINANT ANALYSIS    CLASSIFICATION SUMMARY FOR CALIBRATION DATA: USER010.FRYTEST1

GENERALIZED SQUARED DISTANCE FUNCTION:         POSTERIOR PROBABILITY OF MEMBERSHIP IN EACH RETSTAT:

 2           _          -1  _                                     2                      2
D (X) = (X-X )' COV   (X-X ) - 2 LN PRIOR      PR(J|X) = EXP(-.5 D (X)) / SUM EXP(-.5 D (X))
 J           J              J              J                        J         K           K

          NUMBER OF OBSERVATIONS AND PERCENTS CLASSIFIED INTO RETSTAT:
                                   FROM
                                  RETSTAT        Not Ret 0     Ret 1     TOTAL

               ACTUAL                 0             2846       139      2985
                                                   95.34      4.66    100.00

                                      1              212       177       389
                                                   54.50     45.50    100.00

                          TOTAL                     3058       316      3374
                          PERCENT                  90.63      9.37    100.00

                          PRIORS      .           0.8847    0.1153
                                                       PREDICTED
```

1983 x 1

Predicted 212 kids would not be retained who were versus 139 who would be retained but were not.

2846
177
3023/3374 = 89.60 prediction accuracy

86.30

```
         AUSTIN INDEPENDENT SCHOOL DISTRICT           1ST GRD RET PRED                             40
        OFFICE OF RESEARCH AND EVALUATION              SA-JF068 0301
        SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                  X
        1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                         X
                             DISCRIMINANT ANALYSIS           14:52 THURSDAY, FEBRUARY 26, 1987

   DISCRIMINANT ANALYSIS     CLASSIFICATION SUMMARY FOR TEST DATA: USER010.FRVTEST2

GENERALIZED SQUARED DISTANCE FUNCTION:           POSTERIOR PROBABILITY OF MEMBERSHIP IN EACH RETSTAT:

 2              _          -1   _                                        2                   2
D (X) = (X-X )' COV   (X-X ) - 2 LN PRIOR        PR(J|X) = EXP(-.5 D (X)) / SUM EXP(-.5 D (X))
 J             J               J              J                              J          K        K

         NUMBER OF OBSERVATIONS AND PERCENTS CLASSIFIED INTO RETSTAT:
                                         FROM
                                       RETSTAT          0         1     TOTAL

                                             0       3023       157      3180
                                                    95.06      4.94    100.00

                                             1        197       187       384
                                                    51.30     48.70    100.00

                                  TOTAL              3220       344      3564
                                  PERCENT           90.35      9.65    100.00

NOTE: DATA SET USER010.DERIVED HAS 21 OBSERVATIONS AND 21 VARIABLES. 46 OBS/TRK.
                        PRIORS               0.8847  0.1153
NOTE: THE PROCEDURE DISCRIM USED 1114.02 SECONDS AND 428K AND PRINTED PAGES 1 TO 40.

1          PROC PRINT  DATA = DERIVED;                                        00001280
117                                                                           00001290
```

1984-85

APPENDIX A
67

3023
187
3210/3564 = 90.07% accuracy

```
                         AUSTIN INDEPENDENT SCHOOL DISTRICT           1ST GRD RET PRED                      41
                         OFFICE OF RESEARCH AND EVALUATION                SA-JF068 0301
                         SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                 X
                         1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                        X
                                     DISCRIMINANT ANALYSIS               14:52 THURSDAY, FEBRUARY 26, 1987

 OBS   _TYPE_   RETSTAT   _LNDET_   _PRIOR_    BLACK   HISPANIC     SEXB    LISTATB   AGERNDB     MRTB    SCHDAYSB

   1    PLPR       .         2         .          .         .          .        .         .         .          .
   2    MEAN       0         .     -0.2450        0         0     0.1002     0.143      1.34     9.625        56
   3    MEAN       1         .     -4.3205        0         0     0.1517     0.224      1.81     8.370        77
   4    STD        .         .         .          0         0     0.3076     0.359      2.72    19.430       112
   5    RINV       .         .         .      24819     14502    -2.7693   -19.335   -290.31    34.130    -11362
   6    RINV       .         .         .      14502     28173     0.0375    -0.097     -2.52    -3.583         9
   7    RINV       .         .         .         -3         0     1.8178    -0.001     -1.35     0.294         3
   8    RINV       .         .         .        -19        -0    -0.0006     3.373     -4.17     1.538        19
   9    RINV       .         .         .       -290        -3    -1.3543    -4.169    185.00   -11.674       121
  10    RINV       .         .         .         34        -4     0.2942     1.538    -11.67    11.706       -36
  11    RINV       .         .         .     -11362         9     2.6400    19.234    120.52   -36.147     11262
  12    RINV       .         .         .          0        -1     0.0004    -0.001     -0.03    -0.036         0
  13    RINV       .         .         .          0       -12     0.0002    -0.001     -0.01    -0.021         0
  14    RINV       .         .         .         -1      -147    -0.0107     0.028      0.72     1.023        -3
  15    RINV       .         .         .         -1        38    -0.0119     0.031      0.80     1.142        -3
  16    RINV       .         .         .         -0    -12097    -0.0025     0.006      0.16     0.235        -1
  17    RINV       .         .         .         -0         0     0.0005    -0.001     -0.03    -0.050         0
  18    RINV       .         .         .         12        13     0.0003    -0.001     -0.02    -0.028         0
  19    RINV       .         .         .        157       171    -0.0058     0.015      0.39     0.559        -1
  20    RINV       .         .         .        -30       -36    -0.0090     0.023      0.61     0.862        -2
  21    RINV       .         .         .      15826     17420     0.0270    -0.070     -1.82    -2.584         6

 OBS      SEXH      LISTATH     AGERNCH      MRTH      SCHDAYSH      SEXA     LISTATA    AGERNDA      MRTA     SCHDAYSA

   1        .           .           .          .           .           .          .          .          .          .
   2     0.1333      0.170        1.78     13.768         73      0.2637     0.1018      3.514     31.040      140.4
   3     0.2416      0.362        2.56     15.553        126      0.1825     0.1131      1.674     10.350       72.6
   4     0.3513      0.389        3.01     23.189        124      0.4348     0.3042      3.231     29.325      136.3
   5     0.0236      0.014       -0.68     -0.755         -0     -0.1767    11.5542    157.293    -29.868    15825.9
   6    -0.8041    -12.665     -147.41     38.470     -12097      0.0017    12.8229    170.826    -36.266    17420.0
   7     0.0004      0.000       -0.01     -0.012         -0      0.0005     0.0003     -0.006     -0.009        0.0
   8    -0.0010     -0.001        0.03      0.031          0     -0.0013    -0.0008      0.015      0.023       -0.1
   9    -0.0251     -0.015        0.72      0.803          0     -0.0349    -0.0200      0.393      0.606       -1.8
  10    -0.0357     -0.021        1.02      1.142          0     -0.0496    -0.0284      0.559      0.862       -2.6
  11     0.0686      0.052       -2.54     -2.032         -1      0.1229     0.0704     -1.386     -2.138        6.4
  12     1.7525      0.162       -1.57      0.007          1      0.0023     0.0013     -0.026     -0.040        0.1
  13     0.1623      2.643       -4.44      1.543         13      0.0013     0.0008     -0.015     -0.023        0.1
  14    -1.5708     -4.438      159.50    -10.076          1     -0.0663    -0.0379      0.747      1.152       -3.5
  15     0.0066      1.549      -10.08     14.391        -45     -0.0739    -0.0423      0.833      1.286       -3.9
  16     1.1554     12.870        0.57    -45.170      12129     -0.0152    -0.0087      0.171      0.264       -0.8
  17     0.0023      0.001       -0.07     -0.074         -0      1.5227     0.0266     -1.480      0.343        0.1
  18     0.0013      0.001       -0.04     -0.042         -0      0.0266     1.2565     -2.333      1.164       14.8
  19    -0.0261     -0.015        0.75      0.833          0     -1.4803    -2.3332    155.665     -6.343       42.5
  20    -0.0402     -0.023        1.15      1.286          0      0.3429     1.1643     -6.343     17.011      -47.7
  21     0.1235      0.070       -3.46     -3.855         -1      0.0888    14.7690     42.528    -47.732    19161.3
NOTE: THE PROCEDURE PRINT USED 5.22 SECONDS AND 362K AND PRINTED PAGE 41.

118          DATA FRYTESTI;                                                          00001300
119               SET FRYTESTI;                                                      00001310
120               IF _N_ GT 200  THEN DELETE;                                        00001320

NOTE: DATA SET USER010.FRYTESTI HAS 200 OBSERVATIONS AND 19 VARIABLES. 50 OBS/TRK.
NOTE: THE DATA STATEMENT USED 22.62 SECONDS AND 336K.
```

```
1        S A S   L O G   VSE SAS 82.4        VSE 3.1 JOB EVISAS                                15:10 FRIDAY, FEBRUARY 27, 1987

NOTE: THE JOB EVISAS HAS BEEN RUN UNDER RELEASE 82.4 OF SAS
      AT AUSTIN INDEPENDENT SCHOOL DISTRICT (01986001).

NOTE: CPUID   VERSION = FF  SERIAL = 013553  MODEL = 4341 .

NOTE: NO OPTIONS SPECIFIED.

1                                                                                       00000130
2            OPTIONS ERRORS = 0;                                                        00000140
3                                                                                       00000150
4            TITLE1 AUSTIN INDEPENDENT SCHOOL DISTRICT             1ST GRD RET PRED ; 00000160
5            TITLE2 OFFICE OF RESEARCH AND EVALUATION                  SA-JF068 0301; 00000170
6            TITLE3 SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                    X; 00000180
7            TITLE4 1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                           X; 00000190
8            TITLE5 DISCRIMINANT ANALYSIS;                                              00000200
9            TITLE6 '   ';                                                              00000210
10           TITLE7 CALIBRATION GROUP IS ONLY ANGLO/OTHER;                              00000220
11           TITLE8 VALIDATION GROUP IS ONLY ANGLO/OTHER;                               00000230
12                                                                                      00000240
13           *ROC CORR   DATA = FRVYEAR1;                                               00000250
14           *   VAR RETSTAT;                                                           00000260
15           *   WITH  SEX  LISTAT  BLACK  HISPANIC  ANGOTHER  AGERND                   00000270
16           *         MRT  ITBSR  ITBSM  ITBSL  SCHDAYS;                               00000280
17           *                                                                          00000290
18           *ROC TABULATE   F=7  DATA = FRVYEAR1;                                      00000300
19           *   CLASS RETSTAT;                                                         00000310
20           *   VAR MRT  ITBSR  ITBSM  ITBSL;                                          00000320
21           *   TABLE  RETSTAT  ALL,                                                   00000330
22           *         (MRT  ITBSR  ITBSL  ITBSM)*(N  MEAN*F=7.1);                      00000340
23           *   KEYLABEL  ALL = 'TOTAL';                                               00000350
24                                                                                      00000360
25           DATA FRVTEST1;                                                             00000370
26               SET FRVYEAR1;                                                          00000380
27               IF MRT GT 0;                                                           00000390
28               IF SCHDAYS GE 155  THEN SCHDAYS = SCHDAYS + 15;                        00000400
29               IF ANGOTHER = 1;                                                       00000410
30                                                                                      00000420
31               SEXB = 0;  LISTATB = 0;  AGERNDB = 0;  MRTB = 0;  SCHDAYSB = 0;        00000430
32               SEXH = 0;  LISTATH = 0;  AGERNDH = 0;  MRTH = 0;  SCHDAYSH = 0;        00000440
33               SEXA = 0;  LISTATA = 0;  AGERNDA = 0;  MRTA = 0;  SCHDAYSA = 0;        00000450
34                                                                                      00000460
35               IF BLACK = 1       THEN GO TO CHKBLACK;                                00000470
36               IF HISPANIC = 1    THEN GO TO CHKHIS;                                  00000480
37                                                                                      00000490
38               SEXA      = SEX;                                                       00000500
39               LISTATA   = LISTAT;                                                    00000510
40               AGERNDA   = AGERND;                                                    00000520
41               MRTA      = MRT;                                                       00000530
42               SCHDAYSA  = SCHDAYS;                                                   00000540
43               GO TO KEEPIT;                                                          00000550
44                                                                                      00000560
45             CHKBLACK:                                                                00000570
46               SEXB      = SEX;                                                       00000580
47               LISTATB   = LISTAT;                                                    00000590
48               AGERNDB   = AGERND;                                                    00000600
49               MRTB      = MRT;                                                       00000610
50               SCHDAYSB  = SCHDAYS;                                                   00000620
51               GO TO KEEPIT;                                                          00000630
```

attendance
age
LI

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2        S A S   L O G   VSE SAS 82.4        VSE 3.1 JOB EVISAS                          15:10 FRIDAY, FEBRUARY 27, 1987
52                                                                                    00000640
53            CHKHIS:                                                                 00000650
54              SEXH      = SEX;                                                      00000660
55              LISTATH   = LISTAT;                                                   00000670
56              AGERNDH   = AGERND;                                                   00000680
57              MRTH      = MRT;                                                      00000690
58              SCHDAYSH  = SCHDAYS;                                                  00000700
59              GO TO KEEPIT;                                                         00000710
60                                                                                    00000720
61            KEEPIT:                                                                 00000730
62              KEEP STUID  RETSTAT  BLACK  HISPANIC                                  00000740
63                   SEXB  LISTATB  AGERNDB  MRTB  SCHDAYSB                           00000750
64                   SEXH  LISTATH  AGERNDH  MRTH  SCHDAYSH                           00000760
65                   SEXA  LISTATA  AGERNDA  MRTA  SCHDAYSA;                          00000770
66                                                                                    00000780
67                                                                                    00000790

NOTE: DATA SET USER010.FRYTEST1 HAS 1702 OBSERVATIONS AND 19 VARIABLES. 50 OBS/TRK.
NOTE: THE DATA STATEMENT USED 42.34 SECONDS AND 330K.

68          DATA FRYTEST2;                                                            00000800
69              SET FRYYEARA;                                                         00000810
70              IF MRT GT 0;                                                          00000820
71              IF ANGOTHER = 1;                                                      00000830
72                                                                                    00000840
73              SEXB = 0;  LISTATB = 0;  AGERNDB = 0;  MRTB = 0;  SCHDAYSB = 0;       00000850
74              SEXH = 0;  LISTATH = 0;  AGERNDH = 0;  MRTH = 0;  SCHDAYSH = 0;       00000860
75              SEXA = 0;  LISTATA = 0;  AGERNDA = 0;  MRTA = 0;  SCHDAYSA = 0;       00000870
76                                                                                    00000880
77              IF BLACK = 1      THEN GO TO CHKBLACK;                                00000890
78              IF HISPANIC = 1   THEN GO TO CHKHIS;                                  00000900
79                                                                                    00000910
80              SEXA      = SEX;                                                      00000920
81              LISTATA   = LISTAT;                                                   00000930
82              AGERNDA   = AGERND;                                                   00000940
83              MRTA      = MRT;                                                      00000950
84              SCHDAYSA  = SCHDAYS;                                                  00000960
85              GO TO KEEPIT;                                                         00000970
86                                                                                    00000980
87            CHKBLACK:                                                               00000990
88              SEXB      = SEX;                                                      00001000
89              LISTATB   = LISTAT;                                                   00001010
90              AGERNDB   = AGERND;                                                   00001020
91              MRTB      = MRT;                                                      00001030
92              SCHDAYSB  = SCHDAYS;                                                  00001040
93              GO TO KEEPIT;                                                         00001050
94                                                                                    00001060
95            CHKHIS:                                                                 00001070
96              SEXH      = SEX;                                                      00001080
97              LISTATH   = LISTAT;                                                   00001090
98              AGERNDH   = AGERND;                                                   00001100
99              MRTH      = MRT;                                                      00001110
100             SCHDAYSH  = SCHDAYS;                                                  00001120
101             GO TO KEEPIT;                                                         00001130
102                                                                                   00001140
```

```
3       S A S   L O G   VSE SAS 82.4        VSE 3.1 JOB EVISAS                         15:10 FRIDAY, FEBRUARY 27, 1987
106                SEXH  LISTATH  AGERNDH  MRTH  SCHDAYSH                         00001180
107                SEXA  LISTATA  AGERNDA  MRTA  SCHDAYSA;                        00001190
108                                                                               00001200
109         PROC DISCRIM   DATA = FRYTEST1                                        00001210

NOTE: DATA SET USER010.FRYTEST2 HAS 1807 OBSERVATIONS AND 19 VARIABLES. 50 OBS/TRK.
NOTE: THE DATA STATEMENT USED 34.99 SECONDS AND 306K.

110                      S   POOL = YES    SLPOOL = .05   WCOV   WCORR            00001220
111                      PCOV  PCORR   LISTERR   OUT = DERIVED                    00001230
112                      TESTDATA = FRYTEST2   TESTLISTERR;                       00001240
113             CLASS RETSTAT;                                                    00001250
114         *   VAR  BLACK  HISPANIC                                              00001260
115         *        SEXB  LISTATB  AGERNDB  MRTB  SCHDAYSB                       00001270
116         *        SEXH  LISTATH  AGERNDH  MRTH  SCHDAYSH                       00001280
117         *        SEXA  LISTATA  AGERNDA  MRTA  SCHDAYSA;                      00001290
118             VAR  SEXA  LISTATA  AGERNDA  MRTA  SCHDAYSA;                      00001300
119             ID STUID;                                                         00001310
120             PRIORS PROPORTIONAL;                                              00001320
121             TESTCLASS RETSTAT;                                                00001330
122             TESTID STUID;                                                     00001340
123                                                                               00001350
```

```
  AUSTIN INDEPENDENT SCHOOL DISTRICT            1ST GRD RET PRED                    1
 OFFICE OF RESEARCH AND EVALUATION                  SA-JF068 0301
 SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                   X
 1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                          X
                  DISCRIMINANT ANALYSIS                   15:10 FRIDAY, FEBRUARY 27, 1987

              CALIBRATION GROUP IS ONLY ANGLO/OTHER
               VALIDATION GROUP IS ONLY ANGLO/OTHER

                  DISCRIMINANT ANALYSIS


        RETSTAT              FREQUENCY      PRIOR PROBABILITY

              0                 1600           0.94007051

              1                  102           0.05992949
        -----                   ----          ----------
        TOTAL                   1702           1.00000000
```

```
          AUSTIN INDEPENDENT SCHOOL DISTRICT           1ST GRD RET PRED                    2
          OFFICE OF RESEARCH AND EVALUATION               SA-JF068 0301
          SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                X
          1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                       X
                                DISCRIMINANT ANALYSIS           15:10 FRIDAY, FEBRUARY 27, 1987

                         CALIBRATION GROUP IS ONLY ANGLO/OTHER
                          VALIDATION GROUP IS ONLY ANGLO/OTHER

                        DISCRIMINANT ANALYSIS     SIMPLE STATISTICS

                                        RETSTAT = 0
                                                                                        STANDARD
VARIABLE          N                SUM                 MEAN              VARIANCE       DEVIATION

SEXA           1600        787.00000000          0.49187500          0.25009029      0.50009028
LISTATA        1600        304.00000000          0.19000000          0.15399625      0.39242356
AGERNDA        1600      10489.00000000          6.55562500          0.14006840      0.37425713
MRTA           1600      95065.00000000         59.41562500         55.31620349      9.76300177
SCHDAYSA       1600     442893.00000000        276.80812500          1.91750743      1.38474092
--------------------------------------------------------------------------------------------------

                                        RETSTAT = 1

SEXA            102         71.00000000          0.69607843          0.21364784      0.46222055
LISTATA         102         44.00000000          0.43137255          0.24771889      0.49771366
AGERNDA         102        651.10000000          6.38333333          0.10575908      0.32520621
MRTA            102       4026.00000000         39.47058824         92.27140361      9.60580052
SCHDAYSA        102      28226.00000000        276.72549020          2.75558144      1.65999441
```

```
              AUSTIN INDEPENDENT SCHOOL DISTRICT            1ST GRD RET PRED                   3
              OFFICE OF RESEARCH AND EVALUATION                SA-JF068 0301
              SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                X
              1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                       X
                                DISCRIMINANT ANALYSIS            15:10 FRIDAY, FEBRUARY 27, 1987

                            CALIBRATION GROUP IS ONLY ANGLO/OTHER
                             VALIDATION GROUP IS ONLY ANGLO/OTHER

                      DISCRIMINANT ANALYSIS     WITHIN COVARIANCE MATRICES

                            RETSTAT = 0                    DF =  1599

VARIABLE               SEXA           LISTATA          AGERNDA             MRTA         SCHDAYSA

SEXA             0.25009029       -0.00033146       0.01965174      -0.15390674      -0.00249805
LISTATA         -0.00033146        0.15399625       0.02400876      -0.88827392      -0.06483427
AGERNDA          0.01965174        0.02400876       0.14006840       0.20444614      -0.02096506
MRTA            -0.15390674       -0.88827392       0.20444614      95.31620349       1.59199304
SCHDAYSA        -0.00249805       -0.06483427      -0.02096506       1.59199304       1.91750743

--------------------------------------------------------------------------------------------------

                            RETSTAT = 1                    DF =   101

VARIABLE               SEXA           LISTATA          AGERNDA             MRTA         SCHDAYSA

SEXA             0.21364784        0.01358959      -0.00907591      -0.16249272      -0.05455251
LISTATA          0.01358959        0.24771889       0.01023102      -0.49213745      -0.13783731
AGERNDA         -0.00907591        0.01023102       0.10575908      -0.36633663       0.03498350
MRTA            -0.16249272       -0.49213745      -0.36633663      92.27140361       0.71461852
SCHDAYSA        -0.05455251       -0.13783731       0.03498350       0.71461852       2.75558144
```

```
         AUSTIN INDEPENDENT SCHOOL DISTRICT              1ST GRD RET PRED                        4
        OFFICE OF RESEARCH AND EVALUATION                  SA-JF068 0301
        SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                  X
        1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                         X
                              DISCRIMINANT ANALYSIS            15:10 FRIDAY, FEBRUARY 27, 1987

                    CALIBRATION GROUP IS ONLY ANGLO/OTHER
                     VALIDATION GROUP IS ONLY ANGLO/OTHER

DISCRIMINANT ANALYSIS     WITHIN CORRELATION COEFFICIENTS   /   PROBABILITY > |R|

                                  RETSTAT = 0

        VARIABLE          SEXA      LISTATA      AGERNDA         MRTA     SCHDAYSA

        SEXA          1.000000    -0.001689     0.104998    -0.031523    -0.003607
                        0.0000       0.9462       0.0001       0.2076       0.8854

        LISTATA      -0.001689     1.000000     0.163472    -0.231851    -0.119311
                        0.9462       0.0000       0.0001       0.0001       0.0001

        AGERNDA       0.104998     0.163472     1.000000     0.055953    -0.040454
                        0.0001       0.0001       0.0000       0.0252       0.1058

        MRTA         -0.031523    -0.231851     0.055953     1.000000     0.117758
                        0.2076       0.0001       0.0252       0.0000       0.0001

        SCHDAYSA     -0.003607    -0.119311    -0.040454     0.117758     1.000000
                        0.8854       0.0001       0.1058       0.0001       0.0000

        ---------------------------------------------------------------------------

                                  RETSTAT = 1

        VARIABLE          SEXA      LISTATA      AGERNDA         MRTA     SCHDAYSA

        SEXA          1.000000     0.059071    -0.060378    -0.036597    -0.071098
                        0.0000       0.5554       0.5466       0.7150       0.4776

        LISTATA       0.059071     1.000000     0.063209    -0.102937    -0.166832
                        0.5554       0.0000       0.5279       0.3032       0.0938

        AGERNDA      -0.060378     0.063209     1.000000    -0.117270     0.064803
                        0.5466       0.5279       0.0000       0.2405       0.5176

        MRTA         -0.036597    -0.102937    -0.117270     1.000000     0.044816
                        0.7150       0.3032       0.2405       0.0000       0.6547

        SCHDAYSA     -0.071098    -0.166832     0.064803     0.044816     1.000000
                        0.4776       0.0938       0.5176       0.6547       0.0000
```

```
          AUSTIN INDEPENDENT SCHOOL DISTRICT            1ST GRD RET PRED                    5
         OFFICE OF RESEARCH AND EVALUATION                 SA-JF068 0301
         SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                 X
         1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                        X
                             DISCRIMINANT ANALYSIS             15:10 FRIDAY, FEBRUARY 27, 1987

                          CALIBRATION GROUP IS ONLY ANGLO/OTHER
                           VALIDATION GROUP IS ONLY ANGLO/OTHER

         DISCRIMINANT ANALYSIS    POOLED COVARIANCE MATRIX    DF =  1700


VARIABLE                 SEXA             LISTATA             AGERNDA                MRTA            SCHDAYSA

SEXA               0.24792518          0.00049562          0.01794498         -0.15441685         -0.00559069
LISTATA            0.00049562          0.15956448          0.02319020         -0.86473875         -0.06917151
AGERNDA            0.01794498          0.02319020          0.13803002          0.17053493         -0.01764105
MRTA              -0.15441685         -0.86473875          0.17053493         95.13530655          1.53986667
SCHDAYSA          -0.00559069         -0.06917151         -0.01764105          1.53986667          1.96729888
```

```
     AUSTIN INDEPENDENT SCHOOL DISTRICT             1ST GRD RET PRED                    6
    OFFICE OF RESEARCH AND EVALUATION                 SA-JF068 0301
    SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                 X
    1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                        X
                         DISCRIMINANT ANALYSIS              15:10 FRIDAY, FEBRUARY 27, 1987

                    CALIBRATION GROUP IS ONLY ANGLO/OTHER
                     VALIDATION GROUP IS ONLY ANGLO/OTHER

DISCRIMINANT ANALYSIS    PARTIAL CORRELATION COEFFICIENTS COMPUTED FROM POOLED COVARIANCE MATRIX   /    PROB > |R|


                    VARIABLE         SEXA      LISTATA      AGERNDA         MRTA     SCHDAYSA

                    SEXA         1.000000     0.002492     0.097005    -0.031795    -0.008005
                                   0.0000       0.9182       0.0001       0.1900       0.7415

                    LISTATA      0.002492     1.000000     0.156261    -0.221945    -0.123459
                                   0.9182       0.0000       0.0001       0.0001       0.0001

                    AGERNDA      0.097005     0.156261     1.000000     0.047060    -0.033853
                                   0.0001       0.0001       0.0000       0.0523       0.1628

                    MRTA        -0.031795    -0.221945     0.047060     1.000000     0.112558
                                   0.1900       0.0001       0.0523       0.0000       0.0001

                    SCHDAYSA    -0.008005    -0.123459    -0.033853     0.112558     1.000000
                                   0.7415       0.0001       0.1628       0.0001       0.0000
```

```
AUSTIN INDEPENDENT SCHOOL DISTRICT            1ST GRD RET PRED                        7
OFFICE OF RESEARCH AND EVALUATION                 SA-JF068 0301
SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                 X
1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                        X
                    DISCRIMINANT ANALYSIS             15:10 FRIDAY, FEBRUARY 27, 1987

            CALIBRATION GROUP IS ONLY ANGLO/OTHER
             VALIDATION GROUP IS ONLY ANGLO/OTHER

 DISCRIMINANT ANALYSIS      POOLED COVARIANCE MATRIX INFORMATION

          COVARIANCE        NATURAL LOG OF DETERMINANT
          MATRIX RANK       OF THE COVARIANCE MATRIX

              5                   -0.09564844
```

```
AUSTIN INDEPENDENT SCHOOL DISTRICT              1ST GRD RET PRED                        8
OFFICE OF RESEARCH AND EVALUATION                  SA-JF068 0301
SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                   X
1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                          X
                         DISCRIMINANT ANALYSIS            15:10 FRIDAY, FEBRUARY 27, 1987

                      CALIBRATION GROUP IS ONLY ANGLO/OTHER
                       VALIDATION GROUP IS ONLY ANGLO/OTHER

DISCRIMINANT ANALYSIS     PAIRWISE SQUARED GENERALIZED DISTANCES BETWEEN GROUPS

                    2                   -1
                   D (I|J) = (X - X )' COV   (X - X ) - 2 LN PRIOR
                              I   J            I   J              J

                    GENERALIZED SQUARED DISTANCE TO RETSTAT

              FROM RETSTAT                     0                 1

                        0            0.12360080       10.17824734
                        1            4.67267515        5.62917299
```

```
  AUSTIN INDEPENDENT SCHOOL DISTRICT           1ST GRD RET PRED                      9
 OFFICE OF RESEARCH AND EVALUATION                SA-JF068 0301
 SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                X
 1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                       X
                       DISCRIMINANT ANALYSIS             15:10 FRIDAY, FEBRUARY 27, 1987

                 CALIBRATION GROUP IS ONLY ANGLO/OTHER
                  VALIDATION GROUP IS ONLY ANGLO/OTHER

     DISCRIMINANT ANALYSIS        LINEAR DISCRIMINANT FUNCTION

                        -1 _                                          -1 _
CONSTANT = -.5 X' COV     X  + LN PRIOR      COEFFICIENT VECTOR = COV    X
               J          J          J                                    J

                              RETSTAT

                                     0                 1

          CONSTANT     -20087.70445894   -20109.56255305
          SEXA             -0.04104624        0.74436529
          LISTATA          47.45536777       48.09791769
          AGERNDA          59.63641135       58.44503012
          MRTA             -1.38170316       -1.58421609
          SCHDAYSA        143.98937818      144.12002840
```

```
        AUSTIN INDEPENDENT SCHOOL DISTRICT           1ST GRD RET PRED                       13
       OFFICE OF RESEARCH AND EVALUATION                SA-JF068 0301
       SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                X
       1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                       X
                             DISCRIMINANT ANALYSIS              15:10 FRIDAY, FEBRUARY 27, 1987

                     CALIBRATION GROUP IS ONLY ANGLO/OTHER
                      VALIDATION GROUP IS ONLY ANGLO/OTHER

    DISCRIMINANT ANALYSIS     CLASSIFICATION SUMMARY FOR CALIBRATION DATA: USER010.FRYTEST1

GENERALIZED SQUARED DISTANCE FUNCTION:          POSTERIOR PROBABILITY OF MEMBERSHIP IN EACH RETSTAT:

 2                      -1                                         2                        2
D (X) = (X-X )' COV   (X-X ) - 2 LN PRIOR       PR(J|X) = EXP(-.5 D (X)) / SUM EXP(-.5 D (X))
 J          J              J               J                      J         K            K

        NUMBER OF OBSERVATIONS AND PERCENTS CLASSIFIED INTO RETSTAT:
                                  FROM
                                RETSTAT          0        1    TOTAL

                                      0       1558       42     1600
                                             97.38     2.63   100.00

                                      1         57       45      102
                                             55.88    44.12   100.00

                           TOTAL              1615       87     1702
                           PERCENT           94.89     5.11   100.00

                           PRIORS           0.9401   0.0599
```

83-84

1603/1702 = 94.18%

```
         AUSTIN INDEPENDENT SCHOOL DISTRICT              1ST GRD RET PRED                       17
         OFFICE OF RESEARCH AND EVALUATION                 SA-JF068 0301
         SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                 X
         1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                        X
                                DISCRIMINANT ANALYSIS               15:10 FRIDAY, FEBRUARY 27, 1987

                           CALIBRATION GROUP IS ONLY ANGLO/OTHER
                           VALIDATION GROUP IS ONLY ANGLO/OTHER

          DISCRIMINANT ANALYSIS     CLASSIFICATION SUMMARY FOR TEST DATA: USER010.FRYTEST2

     GENERALIZED SQUARED DISTANCE FUNCTION:          POSTERIOR PROBABILITY OF MEMBERSHIP IN EACH RETSTAT:

      2          _          -1  _                                       2                    2
     D (X) = (X-X )' COV   (X-X ) - 2 LN PRIOR        PR(J|X) = EXP(-.5 D (X)) / SUM EXP(-.5 D (X))
      J          J              J              J                        J         K          K

                NUMBER OF OBSERVATIONS AND PERCENTS CLASSIFIED INTO RETSTAT:
                                          FROM
                                        RETSTAT          0         1     TOTAL

                                              0       1657        55      1712
                                                     96.79      3.21    100.00

                                              1         54        41        95
                                                     56.84     43.16    100.00

                                     TOTAL            1711        96      1807
                                     PERCENT         94.69      5.31    100.00

NOTE: DATA SET USER010.DERIVED HAS 9 OBSERVATIONS AND 9 VARIABLES. 110 OBS/TRK.
                                     PRIORS            0.9401  0.0599
NOTE: THE PROCEDURE DISCRIM USED 133.95 SECONDS AND 424K AND PRINTED PAGES 1 TO 17.
124        PROC PRINT  DATA = DERIVED;                                                 00001360
125                                                                                    00001370
126        *ATA FRYTEST1;                                                              00001380
127        *   SET FRYTEST1;                                                           00001390
128        *   IF _N_ GT 200  THEN DELETE;                                             00001400
129        *ROC PRINT;                                                                 00001410
130        *                                                                           00001420
131        *ATA FRYTEST2;                                                              00001430
132        *   SET FRYTEST2;                                                           00001440
133        *   IF _N_ GT 200  THEN DELETE;                                             00001450
134        *ROC PRINT;                                                                 00001460
135                                                                                    00001470
```

5%

1698/1807 = 93.97%

APPENDIX A
82

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                    AUSTIN INDEPENDENT SCHOOL DISTRICT            1ST GRD RET PRED                       18
                    OFFICE OF RESEARCH AND EVALUATION              SA-JF068 0301
                    SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984              X
                    1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                     X
                                      DISCRIMINANT ANALYSIS       15:10 FRIDAY, FEBRUARY 27, 1987

                                 CALIBRATION GROUP IS ONLY ANGLO/OTHER
                                  VALIDATION GROUP IS ONLY ANGLO/OTHER

      OBS    _TYPE_    RETSTAT    _LNDET_    _PRIOR_        SEXA     LISTATA     AGERNDA      MRTA     SCHDAYSA

       1     PLPR         .          2          .            .           .           .           .          .
       2     MEAN         0          .       -0.1236     0.49187     0.19000     6.55562     59.4156    276.808
       3     MEAN         1          .       -5.6292     0.69608     0.43137     6.38333     39.4706    276.725
       4     STD          .          .          .        0.49792     0.39946     0.37152      9.7537      1.403
       5     RINV         .          .          .        1.01135     0.02331    -0.10363      0.0419      0.003
       6     RINV         .          .          .        0.02331     1.09425    -0.18112      0.2406      0.102
       7     RINV         .          .          .       -0.10363    -0.18112     1.04361     -0.0952      0.023
       8     RINV         .          .          .        0.04190     0.24064    -0.09518      1.0698     -0.094
       9     RINV         .          .          .        0.00275     0.10206     0.02285     -0.0936      1.024
NOTE: THE PROCEDURE PRINT USED 2.59 SECONDS AND 348K AND PRINTED PAGE 18.

136        PROC DELETE DATA=FRYTEST1  DERIVED  FRYTEST2;                          00001480

NOTE: THE PROCEDURE DELETE USED 2.86 SECONDS AND 284K.
NOTE: SAS USED 424K MEMORY.

NOTE: SAS INSTITUTE INC.
      SAS CIRCLE
      PO BOX 8000
      CARY, N.C.  27511-8000
```

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1       S A S   L O G   VSE SAS 82.4         VSE 3.1 JOB EVISAS                                    12:54 FRIDAY, FEBRUARY 27, 1987

NOTE: THE JOB EVISAS HAS BEEN RUN UNDER RELEASE 82.4 OF SAS
      AT AUSTIN INDEPENDENT SCHOOL DISTRICT (01986001).

NOTE: CPUID   VERSION = FF  SERIAL = 013553  MODEL = 4341 .

NOTE: NO OPTIONS SPECIFIED.

1                                                                                    00000130
2            OPTIONS ERRORS = 0;                                                     00000140
3                                                                                    00000150
4            TITLE1 AUSTIN INDEPENDENT SCHOOL DISTRICT           1ST GRD RET PRED ;  00000160
5            TITLE2 OFFICE OF RESEARCH AND EVALUATION                SA-JF068 0301;  00000170
6            TITLE3 SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                X;  00000180
7            TITLE4 1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                       X;  00000190
8            TITLE5 DISCRIMINANT ANALYSIS;                                           00000200
9            TITLE6 '   ';                                                           00000210
10           TITLE7 CALIBRATION GROUP IS ONLY HISPANIC;                              00000220
11           TITLE8 VALIDATION GROUP IS ONLY HISPANIC;                               00000230
12                                                                                   00000240
13           *ROC CORR   DATA = FRYYEAR1;                                            00000250
14           *   VAR RETSTAT;                                                        00000260
15           *   WITH  SEX  LISTAT  BLACK  HISPANIC  ANOTHER  AGERND                 00000270
16           *         MRT  ITBSR  ITBSM  ITBSL  SCHDAYS;                            00000280
17           *                                                                       00000290
18           *ROC TABULATE   F=7  DATA = FRYYEAR1;                                   00000300
19           *   CLASS RETSTAT;                                                      00000310
20           *   VAR MRT  ITBSR  ITBSM  ITBSL;                                       00000320
21           *   TABLE  RETSTAT  ALL,                                                00000330
22           *          (MRT  ITBSR  ITBSL  ITBSM)*(N  MEAN*F=7.1);                  00000340
23           *   KEYLABEL  ALL = 'TOTAL';                                            00000350
24                                                                                   00000360
25           DATA FRYTEST1;                                                          00000370
26               SET FRYYEAR1;                                                       00000380
27               IF MRT GT 0;                                                        00000390
28               IF SCHDAYS GE 155  THEN SCHDAYS = SCHDAYS + 15;                     00000400
29               IF HISPANIC = 1;                                                    00000410
30                                                                                   00000420
31               SEXB = 0;  LISTATB = 0;  AGERNDB = 0;  MRTB = 0;  SCHDAYSB = 0;     00000430
32               SEXH = 0;  LISTATH = 0;  AGERNDH = 0;  MRTH = 0;  SCHDAYSH = 0;     00000440
33               SEXA = 0;  LISTATA = 0;  AGERNDA = 0;  MRTA = 0;  SCHDAYSA = 0;     00000450
34                                                                                   00000460
35               IF BLACK = 1       THEN GO TO CHKBLACK;                             00000470
36               IF HISPANIC = 1    THEN GO TO CHKHIS;                               00000480
37                                                                                   00000490
38               SEXA     = SEX;                                                     00000500
39               LISTATA  = LISTAT;                                                  00000510
40               AGERNDA  = AGERND;                                                  00000520
41               MRTA     = MRT;                                                     00000530
42               SCHDAYSA = SCHDA...                                                 00000540
43               GO TO KEEPIT;                                                       00000550
44                                                                                   00000560
45             CHKBLACK:                                                             00000570
46               SEXB     = SEX;                                                     00000580
47               LISTATB  = LISTAT;                                                  00000590
48               AGERNDB  = AGERND;                                                  00000600
49               MRTB     = MRT;                                                     00000610
50               SCHDAYSB = SCHDAYS;                                                 00000620
51               GO TO KEEPIT;                                                       00000630
```

Attendance

(49c

```
2       S A S   L O G   VSE SAS 82.4        VSE 3.1 JOB EVISAS                                     12:54 FRIDAY, FEBRUARY 27, 1987
52                                                                                      00000640
53            CHKHIS:                                                                   00000650
54              SEXH      = SEX;                                                        00000660
55              LISTATH   = LISTAT;                                                     00000670
56              AGERNDH   = AGERND;                                                     00000680
57              MRTH      = MRT;                                                        00000690
58              SCHDAYSH = SCHDAYS;                                                     00000700
59              GO TO KEEPIT;                                                           00000710
60                                                                                      00000720
61            KEEPIT:                                                                   00000730
62              KEEP STUID  RETSTAT  BLACK  HISPANIC                                    00000740
63                   SEXB  LISTATB  AGERNDB  MRTB  SCHDAYSB                             00000750
64                   SEXH  LISTATH  AGERNDH  MRTH  SCHDAYSH                             00000760
65                   SEXA  LISTATA  AGERNDA  MRTA  SCHDAYSA;                            00000770
66                                                                                      00000780
67                                                                                      00000790

NOTE: DATA SET USER010.FRYTEST1 HAS 963 OBSERVATIONS AND 19 VARIABLES. 50 OBS/TRK.
NOTE: THE DATA STATEMENT USED 21.16 SECONDS AND 330K.

68           DATA FRYTEST2;                                                             00000800
69              SET FRYYEARA;                                                           00000810
70              IF MRT GT 0;                                                            00000820
71              IF HISPANIC = 1;                                                        00000830
72                                                                                      00000840
73              SEXB = 0;  LISTATB = 0;  AGERNDB = 0;  MRTB = 0;  SCHDAYSB = 0;         00000850
74              SEXH = 0;  LISTATH = 0;  AGERNDH = 0;  MRTH = 0;  SCHDAYSH = 0;         00000860
75              SEXA = 0;  LISTATA = 0;  AGERNDA = 0;  MRTA = 0;  SCHDAYSA = 0;         00000870
76                                                                                      00000880
77              IF BLACK = 1      THEN GO TO CHKBLACK;                                  00000890
78              IF HISPANIC = 1   THEN GO TO CHKHIS;                                    00000900
79                                                                                      00000910
80              SEXA      = SEX;                                                        00000920
81              LISTATA   = LISTAT;                                                     00000930
82              AGERNDA   = AGERND;                                                     00000940
83              MRTA      = MRT;                                                        00000950
84              SCHDAYSA = SCHDAYS;                                                     00000960
85              GO TO KEEPIT;                                                           00000970
86                                                                                      00000980
87            CHKBLACK:                                                                 00000990
88              SEXB      = SEX;                                                        00001000
89              LISTATB   = LISTAT;                                                     00001010
90              AGERNDB   = AGERND;                                                     00001020
91              MRTB      = MRT;                                                        00001030
92              SCHDAYSB = SCHDAYS;                                                     00001040
93              GO TO KEEPIT;                                                           00001050
94                                                                                      00001060
95            CHKHIS:                                                                   00001070
96              SEXH      = SEX;                                                        00001080
97              LISTATH   = LISTAT;                                                     00001090
98              AGERNDH   = AGERND;                                                     00001100
99              MRTH      = MRT;                                                        00001110
100             SCHDAYSH = SCHDAYS;                                                     00001120
101             GO TO KEEPIT;                                                           00001130
102                                                                                     00001140
103           KEEPIT:                                                                   00001150
104             KEEP STUID  RETSTAT  BLACK  HISPANIC                                    00001160
105                  SEXB  LISTATB  AGERNDB  MRTB  SCHDAYSB                             00001170
```

```
3        S A S   L O G   VSE SAS 82.4        VSE 3.1 JOB EVISAS                     12:54 FRIDAY, FEBRUARY 27, 1987
106                SEXH  LISTATH  AGERNDH  MRTH  SCHDAYSH                               00001180
107                SEXA  LISTATA  AGERNDA  MRTA  SCHDAYSA;                              00001190
108                                                                                     00001200
109        PROC DISCRIM   DATA = FRYTEST1                                               00001210

NOTE: DATA SET USER010.FRYTEST2 HAS 1017 OBSERVATIONS AND 19 VARIABLES. 50 OBS/TRK.
NOTE: THE DATA STATEMENT USED 10.71 SECONDS AND 306K.

110                    S   POOL = YES    SLPOOL = .05   WCOV   WCORR                    00001220
111                    PCOV  PCORR   LISTERR   OUT = DERIVED                            00001230
112                    TESTDATA = FRYTEST2   TESTLISTERR;                               00001240
113            CLASS RETSTAT;                                                           00001250
114       *    VAR  BLACK  HISPANIC                                                     00001260
115       *         SEXB  LISTATB  AGERNDB  MRTB  SCHDAYSB                              00001270
116       *         SEXH  LISTATH  AGERNDH  MRTH  SCHDAYSH                              00001280
117       *         SEXA  LISTATA  AGERNDA  MRTA  SCHDAYSA;                             00001290
118            VAR  SEXH  LISTATH  AGERNDH  MRTH  SCHDAYSH;                             00001300
119            ID STUID;                                                                00001310
120            PRIORS PROPORTIONAL;                                                     00001320
121            TESTCLASS RETSTAT;                                                       00001330
122            TESTID STUID;                                                            00001340
123                                                                                     00001350
```

```
 AUSTIN INDEPENDENT SCHOOL DISTRICT           1ST GRD RET PRED                     1
OFFICE OF RESEARCH AND EVALUATION                SA-JF068 0301
SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                X
1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                       X
                     DISCRIMINANT ANALYSIS                 12:54 FRIDAY, FEBRUARY 27, 1987

               CALIBRATION GROUP IS ONLY HISPANIC
               VALIDATION GROUP IS ONLY HISPANIC

                     DISCRIMINANT ANALYSIS


      RETSTAT               FREQUENCY    PRIOR PROBABILITY

            0                  785          0.81516096

            1                  178          0.18483904
      -----                    ---          ----------
      TOTAL                    963          1.00000000
```

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   AUSTIN INDEPENDENT SCHOOL DISTRICT             1ST GRD RET PRED                              2
  OFFICE OF RESEARCH AND EVALUATION                   SA-JF068 0301
  SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                   X
  1984 SCHCOL YEAR  TO  1985 SCHCOL YEAR                          X
               DISCRIMINANT ANALYSIS                  12:54 FRIDAY, FEBRUARY 27, 1987

                      CALIBRATION GROUP IS ONLY HISPANIC
                      VALIDATION GROUP IS ONLY HISPANIC

                DISCRIMINANT ANALYSIS     SIMPLE STATISTICS

                              RETSTAT = 0

                                                                                          STANDARD
VARIABLE         N               SUM                MEAN              VARIANCE           DEVIATION

SEXH           785      398.00000000          0.50700637            0.25026973          0.50026965
LISTATH        785      506.00000000          0.64458599            0.22938711          0.47894374
AGERNDH        785     5298.70000000          6.74993631            0.23314094          0.48284670
MRTH           785    41097.00000000         52.35286624          124.87150006         11.17459172
SCHDAYSH       785   217134.00000000        276.60382166            3.86452619          1.96583982
---------------------------------------------------------------------------------------------------

                              RETSTAT = 1

SEXH           178       94.00000000          0.52808989            0.25061893          0.50061855
LISTATH        178      141.00000000          0.79213483            0.16558751          0.40692445
AGERNDH        178     1151.50000000          6.46910112            0.10824890          0.32901201
MRTH           178     6050.00000000         33.98876404          101.75128547         10.08718422
SCHDAYSH       178    49158.00000000        276.16853933            7.39516283          2.71940487
```

[illegible]

6.74

6.4/7

```
        AUSTIN INDEPENDENT SCHOOL DISTRICT          1ST GRD RET PRED                      3
       OFFICE OF RESEARCH AND EVALUATION              SA-JF068 0301
       SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984              X
       1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                     X
                          DISCRIMINANT ANALYSIS         12:54 FRIDAY, FEBRUARY 27, 1987

                             CALIBRATION GROUP IS ONLY HISPANIC
                             VALIDATION GROUP IS ONLY HISPANIC

                    DISCRIMINANT ANALYSIS     WITHIN COVARIANCE MATRICES

                           RETSTAT = 0                  DF =    784

VARIABLE              SEXH          LISTATH           AGERNDH              MRTH          SCHDAYSH

SEXH            0.25026973      -0.01089952        0.02771091        0.20607045       -0.00296048
LISTATH        -0.01089952       0.22938711        0.04723499       -1.09891622       -0.10527265
AGERNDH         0.02771091       0.04723499        0.23314094        0.56947403       -0.01845639
MRTH            0.20607045      -1.09891622        0.56947403      124.87150006        2.55961913
SCHDAYSH       -0.00296048      -0.10527265       -0.01845639        2.55961913        3.86452619

-------------------------------------------------------------------------------------------------

                           RETSTAT = 1                  DF =    177

VARIABLE              SEXH          LISTATH           AGERNDH              MRTH          SCHDAYSH

SEXH            0.25061893      -0.03085127       -0.01409890        0.27715356        0.01783787
LISTATH        -0.03085127       0.16558751        0.00088555       -0.90630356       -0.04386466
AGERNDH        -0.01409890       0.00088555        0.10824890        0.45332318        0.06173427
MRTH            0.27715356      -0.90630356        0.45332318      101.75128547        3.42563321
SCHDAYSH        0.01783787      -0.04386466        0.06173427        3.42563321        7.39516283
```

```
SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                      X
1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                             X
                      DISCRIMINANT ANALYSIS                  12:54 FRIDAY, FEBRUARY 27, 1987

                   CALIBRATION GROUP IS ONLY HISPANIC
                   VALIDATION GROUP IS ONLY HISPANIC

DISCRIMINANT ANALYSIS     WITHIN CORRELATION COEFFICIENTS   /   PROBABILITY > |R|

                              RETSTAT = 0

    VARIABLE          SEXH     LISTATH      AGERNDH          MRTH    SCHDAYSH

    SEXH          1.000000   -0.045490     0.114720      0.036862   -0.003010
                    0.0000      0.2030       0.0013        0.3023      0.9329

    LISTATH      -0.045490    1.000000     0.204254     -0.205328   -0.111811
                    0.2030      0.0000       0.0001        0.0001      0.0017

    AGERNDH       0.114720    0.204254     1.000000      0.105544   -0.019444
                    0.0013      0.0001       0.0000        0.0031      0.5865

    MRTH          0.036862   -0.205328     0.105544      1.000000    0.116519
                    0.3023      0.0001       0.0031        0.0000      0.0011

    SCHDAYSH     -0.003010   -0.111811    -0.019444      0.116519    1.000000
                    0.9329      0.0017       0.5865        0.0011      0.0000

    -----------------------------------------------------------------------

                              RETSTAT = 1

    VARIABLE          SEXH     LISTATH      AGERNDH          MRTH    SCHDAYSH

    SEXH          1.000000   -0.151444    -0.085599      0.054884    0.013103
                    0.0000      0.0436       0.2559        0.4668      0.8622

    LISTATH      -0.151444    1.000000     0.006614     -0.220795   -0.039639
                    0.0436      0.0000       0.9302        0.0031      0.5993

    AGERNDH      -0.085599    0.006614     1.000000      0.136592    0.068999
                    0.2559      0.9302       0.0000        0.0691      0.3601

    MRTH          0.054884   -0.220795     0.136592      1.000000    0.124881
                    0.4668      0.0031       0.0691        0.0000      0.0967

    SCHDAYSH      0.013103   -0.039639     0.068999      0.124881    1.000000
                    0.8622      0.5993       0.3601        0.0967      0.0000
```

```
           AUSTIN INDEPENDENT SCHOOL DISTRICT            1ST GRD RET PRED                        5
          OFFICE OF RESEARCH AND EVALUATION                 SA-JF068 0301
          SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                 X
          1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                        X
                              DISCRIMINANT ANALYSIS              12:54 FRIDAY, FEBRUARY 27, 1987

                         CALIBRATION GROUP IS ONLY HISPANIC
                         VALIDATION GROUP IS ONLY HISPANIC

          DISCRIMINANT ANALYSIS    POOLED COVARIANCE MATRIX    DF =    961


VARIABLE               SEXH           LISTATH           AGERNDH              MRTH          SCHDAYSH

SEXH             0.25033404       -0.01457429        0.02001024        0.21916276        0.00087022
LISTATH         -0.01457429        0.21763629        0.03869820       -1.06344022       -0.09396233
AGERNDH          0.02001024        0.03869820        0.21013793        0.54808100       -0.00368662
MRTH             0.21916276       -1.06344022        0.54808100      120.61314628        2.71912433
SCHDAYSH         0.00087022       -0.09396233       -0.00368662        2.71912433        4.51480994
```

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          AUSTIN INDEPENDENT SCHOOL DISTRICT          1ST GRD RET PRED                    6
          OFFICE OF RESEARCH AND EVALUATION             SA-JF068 0301
          SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984             X
          1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                    X
                                DISCRIMINANT ANALYSIS               12:54 FRIDAY, FEBRUARY 27, 1987

                         CALIBRATION GROUP IS ONLY HISPANIC
                         VALIDATION GROUP IS ONLY HISPANIC

DISCRIMINANT ANALYSIS    PARTIAL CORRELATION COEFFICIENTS COMPUTED FROM POOLED COVARIANCE MATRIX   /   PROB > |R|


                  VARIABLE          SEXH      LISTATH      AGERNDH         MRTH     SCHDAYSH

                  SEXH          1.000000    -0.062440     0.087245     0.039885     0.000819
                                  0.0000       0.0529       0.0068       0.2165       0.9798

                  LISTATH      -0.062440     1.000000     0.180956    -0.207563    -0.094791
                                  0.0529       0.0000       0.0001       0.0001       0.0033

                  AGERNDH       0.087245     0.180956     1.000000     0.108867    -0.003785
                                  0.0068       0.0001       0.0000       0.0007       0.9067

                  MRTH          0.039885    -0.207563     0.108867     1.000000     0.116523
                                  0.2165       0.0001       0.0007       0.0000       0.0003

                  SCHDAYSH      0.000819    -0.094791    -0.003785     0.116523     1.000000
                                  0.9798       0.0033       0.9067       0.0003       0.0000
```

```
AUSTIN INDEPENDENT SCHOOL DISTRICT          1ST GRD RET PRED                          7
OFFICE OF RESEARCH AND EVALUATION              SA-JF06B 0301
SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984              X
1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                     X
                    DISCRIMINANT ANALYSIS               12:54 FRIDAY, FEBRUARY 27, 1987

              CALIBRATION GROUP IS ONLY HISPANIC
              VALIDATION GROUP IS ONLY HISPANIC

 DISCRIMINANT ANALYSIS     POOLED COVARIANCE MATRIX INFORMATION

          COVARIANCE       NATURAL LOG OF DETERMINANT
          MATRIX RANK      OF THE COVARIANCE MATRIX

               5                  1.69608090
```

```
      AUSTIN INDEPENDENT SCHOOL DISTRICT            1ST GRD RET PRED                  8
     OFFICE OF RESEARCH AND EVALUATION                 SA-JF068 0301
     SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984              X
     1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                     X
                    DISCRIMINANT ANALYSIS              12:54 FRIDAY, FEBRUARY 27, 1987

                 CALIBRATION GROUP IS ONLY HISPANIC
                 VALIDATION GROUP IS ONLY HISPANIC

DISCRIMINANT ANALYSIS     PAIRWISE SQUARED GENERALIZED DISTANCES BETWEEN GROUPS

             2                      -1
            D (I|J) = (X - X )' COV   (X - X ) - 2 LN PRIOR
                        _   _            _   _
                        I   J            I   J              J

               GENERALIZED SQUARED DISTANCE TO RETSTAT

          FROM RETSTAT                    0                  1

                     0            0.40873939         6.38668610
                     1            3.41888577         3.37653972
```

```
 AUSTIN INDEPENDENT SCHOOL DISTRICT              1ST GRD RET PRED                         9
OFFICE OF RESEARCH AND EVALUATION                   SA-JF06B 0301
SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                  X
1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                         X
                   DISCRIMINANT ANALYSIS                  12:54 FRIDAY, FEBRUARY 27, 1987

               CALIBRATION GROUP IS ONLY HISPANIC
               VALIDATION GROUP IS ONLY HISPANIC

     DISCRIMINANT ANALYSIS          LINEAR DISCRIMINANT FUNCTION

                     -1 _                                             -1 _
CONSTANT = -.5 X' COV   X  + LN PRIOR      COEFFICIENT VECTOR = COV    X
               J        J            J                                  J

                              RETSTAT

                                     0                   1

            CONSTANT     -8701.85163975      -8689.02397752
            SEXH             1.22509109          1.52790633
            LISTATH         19.63518279         19.79423091
            AGERNDH         31.94343976         30.93134740
            MRTH            -0.94400423         -1.09068198
            SCHDAYSH        62.26892271         62.26327519
```

```
        AUSTIN INDEPENDENT SCHOOL DISTRICT            1ST GRD RET PRED                      14
       OFFICE OF RESEARCH AND EVALUATION               SA-JF068 0301
       SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984               X
       1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                      X
                             DISCRIMINANT ANALYSIS            12:54 FRIDAY, FEBRUARY 27, 1987

                                  CALIBRATION GROUP IS ONLY HISPANIC
                                  VALIDATION GROUP IS ONLY HISPANIC

           DISCRIMINANT ANALYSIS     CLASSIFICATION SUMMARY FOR CALIBRATION DATA: USER010.FRYTEST1

       GENERALIZED SQUARED DISTANCE FUNCTION:          POSTERIOR PROBABILITY OF MEMBERSHIP IN EACH RETSTAT:

        2             _        -1  _                                          2                        2
       D (X) = (X-X )' COV   (X-X ) - 2 LN PRIOR       PR(J|X) = EXP(-.5 D (X)) / SUM EXP(-.5 D (X))
        J           J             J             J                          J           K            K

                NUMBER OF OBSERVATIONS AND PERCENTS CLASSIFIED INTO RETSTAT:
                                                FROM
                                              RETSTAT         0         1     TOTAL

                                                    0       739        46       785
                                                          94.14      5.86    100.00

                                                    1        87        91       178
                                                          48.88     51.12    100.00

                                      TOTAL                 826       137       963
                                      PERCENT             85.77     14.23    100.00

                                      PRIORS             0.8152    0.1848
```

86% Tot [illegible]

16.1%

739
91
830
963

~~86~~ 86.19%

APPENDIX A
96

86.30

86.30

```
        AUSTIN INDEPENDENT SCHOOL DISTRICT              1ST GRD RET PRED                    19
       OFFICE OF RESEARCH AND EVALUATION                   SA-JF068 0301
       SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                   X
       1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                          X
                                DISCRIMINANT ANALYSIS              12:54 FRIDAY, FEBRUARY 27, 1987

                              CALIBRATION GROUP IS ONLY HISPANIC
                              VALIDATION GROUP IS ONLY HISPANIC

           DISCRIMINANT ANALYSIS     CLASSIFICATION SUMMARY FOR TEST DATA: USER010.FRYTEST2

  GENERALIZED SQUARED DISTANCE FUNCTION:          POSTERIOR PROBABILITY OF MEMBERSHIP IN EACH RETSTAT:

   2           _          -1  _                                          2                       2
  D (X) = (X-X )' COV   (X-X ) - 2 LN PRIOR       PR(J|X) = EXP(-.5 D (X)) / SUM EXP(-.5 D (X))
   J           J            J              J                             J          K            K

          NUMBER OF OBSERVATIONS AND PERCENTS CLASSIFIED INTO RETSTAT:
                                       FROM
                                    RETSTAT          0          1      TOTAL

                                          0        780         65        845
                                                 92.31       7.69     100.00

                                          1         75         97        172
                                                 43.60      56.40     100.00

                               TOTAL               855        162       1017
                               PERCENT           84.07      15.93     100.00

NOTE: DATA SET USER010.DERIVED HAS 9 OBSERVATIONS AND 9 VARIABLES. 110 OBS/TRK.
                               PRIORS            0.8152     0.1848
NOTE: THE PROCEDURE DISCRIM USED 23.74 SECONDS AND 424K AND PRINTED PAGES 1 TO 19.

124        PROC PRINT  DATA = DERIVED;                                           00001360
125                                                                              00001370
126        *ATA FRYTEST1;                                                        00001380
127        *   SET FRYTEST1;                                                     00001390
128        *   IF _N_ GT 200  THEN DELETE;                                       00001400
129        *ROC PRINT;                                                           00001410
130        *                                                                     00001420
131        *ATA FRYTEST2;                                                        00001430
132        *   SET FRYTEST2;                                                     00001440
133        *   IF _N_ GT 200  THEN DELETE;                                       00001450
134        *ROC PRINT;                                                           00001460
135                                                                              00001470
```

172 → 16.9%

$\frac{97}{172}$ 56.4%

APPENDIX A
97

```
                    AUSTIN INDEPENDENT SCHOOL DISTRICT          1ST GRD RET PRED                  20
                    OFFICE OF RESEARCH AND EVALUATION              SA-JF068 0301
                    SCHOOLS  101-168  GRADE 01 ACTIVE AT EOY 1984                x
                    1984 SCHOOL YEAR  TO  1985 SCHOOL YEAR                       x
                                       DISCRIMINANT ANALYSIS                12:54 FRIDAY, FEBRUARY 27, 1987

                                     CALIBRATION GROUP IS ONLY HISPANIC
                                     VALIDATION GROUP IS ONLY HISPANIC

   OBS    _TYPE_    RETSTAT    _LNDET_    _PRIOR_      SEXH      LISTATH     AGERNDH      MRTH     SCHCAYSH

    1      PLPR        .          2          .           .          .           .           .          .
    2      MEAN        0          .      -0.4087     0.50701    0.64459     6.74994     52.3529    276.604
    3      MEAN        1          .      -3.3765     0.52809    0.79213     6.46910     33.9888    276.169
    4      STD         .          .          .       0.50033    0.46652     0.45841     10.9824      2.125
    5      RINV        .          .          .       1.01436    0.07956    -0.10136     -0.0138      0.008
    6      RINV        .          .          .       0.07956    1.10465    -0.23297      0.2427      0.075
    7      RINV        .          .          .      -0.10136   -0.23297     1.06850     -0.1607      0.001
    8      RINV        .          .          .      -0.01383    0.24268    -0.16073      1.0805     -0.103
    9      RINV        .          .          .       0.00794    0.07549     0.00077     -0.1035      1.019
NOTE: THE PROCEDURE PRINT USED 1.90 SECONDS AND 348K AND PRINTED PAGE 20.

136        PROC DELETE DATA=FRYTEST1  DERIVED  FRYTEST2;                         00001480

NOTE: THE PROCEDURE DELETE USED 2.53 SECONDS AND 284K.
NOTE: SAS USED 424K MEMORY.

NOTE: SAS INSTITUTE INC.
      SAS CIRCLE
      PO BOX 8000
      CARY, N.C.  27511-8000
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Retention and Promotion Program

Appendix B

Descriptive Statistics

Descriptive Statistics

Purpose

The purpose of this section is to provide information to answer the following decision and evaluation questions:

Decision Question D1: Should schools be encouraged to retain more or fewer students?

Evaluation Question D1-1. How many students have actually been retained since 1979-80 (K-12) (actual rather than recommended retainees)?

Evaluation Question D1-2. How many secondary students who failed to be promoted in spring, 1986 were promoted/retained in fall, 1986? How many left AISD for another school district? Dropped out? Returned to AISD? How many attended summer school and were promoted/retained subsequently?

Procedure

To get the number of actual retainees, the District Priorities programmer first checked the status (grade at the end of school year 1) of students; he took active students and those who graduated during the year. He checked to see if they were in the Austin Independent School District by October 1 of the next year. In addition, he checked the grade of those students in the spring of year 2. Those in the same grade in May and October of the same year were considered retained. In this report, retainees are being defined as those actually repeating part or all of a grade.

In order to answer the evaluation questions the same procedure was repeated beginning with the 1980-81 school year through 1986-87 to get the number of actual retainees.

Results

Evaluation Question D1-1. How many students have actually been retained since 1980-81 (K-12) (actual rather than recommended retainees)?

ELEMENTARY POLICY

AISD Policy: Before and After 1981-82

Prior to 1981-82, AISD's elementary retention policy was very general. A revised policy was adopted in April, 1981, which officially went into effect during the 1981-82 school year. It was more specific than the old policy in indicating that:

- All students at least one year behind in reading basals at grades one through six and/or mathematics competencies at grades four through six were to be considered for retention.
- Students generally were to be retained only once in grades K-3 and once in 4-6.
- Teachers and principals had the final responsibility for retention decisions. Parents had to be notified and conferred with at least two months before school ended regarding possible retentions.

The Impact of House Bill 72

The State Board of Education rules based on the House Bill were not in effect until this year (1986-87). These rules indicate that:

- To be promoted, a student must master the essential elements necessary to be successful at the next grade level;
- No student may be retained more than once in grades one through four or once in grades five through eight (except in very unusual cases with parent permission); and
- A student may be placed in the next grade if he or she is achieving at maximum ability and alternative program provisions are made. The student's instructional level is to be indicated on the report card.

SECONDARY POLICY

AISD Policy Before 1985-86

Junior high. Students were promoted based on a point system. A full-year course earned one point; four points were needed for promotion. Students one or two points short could be promoted if they took and passed one or two summer school courses. Placement in the next grade was possible in unusual circumstances (previous retentions, age, social, or other factors) but generally students were retained.

Senior high. Students were promoted based on successful completion of 5, 10, or 15 credits. One semester of a course counts for .5 of a credit.

The Impact of House Bill 72: 1985-86

The full impact of House Bill 72 was felt at the secondary level in 1985-86. New State Board of Education (SBOE) rules specified that:

- To be promoted, students shall attain an **overall** average of 70 or above in all courses. In addition, students must attain an average of 70 or above in three of the four following subject areas: language arts, mathematics, social studies, and science.
- No student shall be retained more than once in grades 5-8 (except in unusual cases with parent permission).
- Students in grades 7 and 8 who fail to meet promotion requirements shall be retained or provided alternative programs.
- Alternative placements involve changes in a student's instructional schedule to allow them to meet promotion standards. Examples include:
  - A transfer to another school;
  - An assignment to a self-contained remedial class; or
  - Enrollment in an alternative instructional program.

HOW MANY STUDENTS ARE RETAINED?

The changes in retention policies have had a profound impact on the number of students retained.

In years past, the number of students recommended for retention in the spring of each year was reported. However, this did not reflect the number actually repeating the next grade because of factors such as student mobility (students leaving AISD), grade changes, and summer school. The figures reported here reflect the number of students listed in the same grade in the spring of two subsequent years. For 1986-87, those in the same grade in May and October of 1986 are included. Therefore, in this report, **retainees are being defined as those actually repeating part or all of a grade.** At the high school level, students repeat only credits failed but are listed in the lower grade.

Attachment 1 shows the number of actual retainees since 1980-81 for students in grades K-12.

FIGURE B-1
AISD STUDENTS REPEATING K-6 IN 1986-87

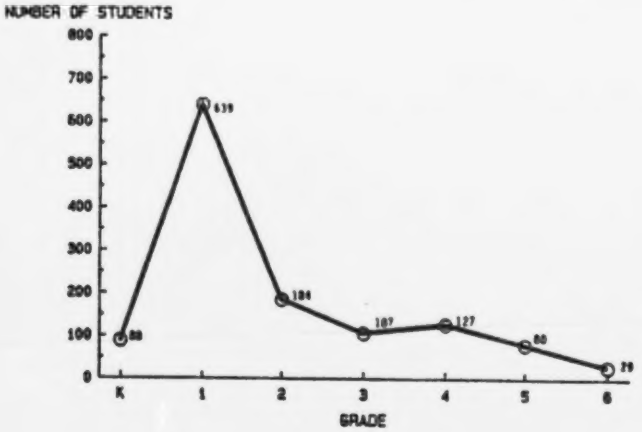
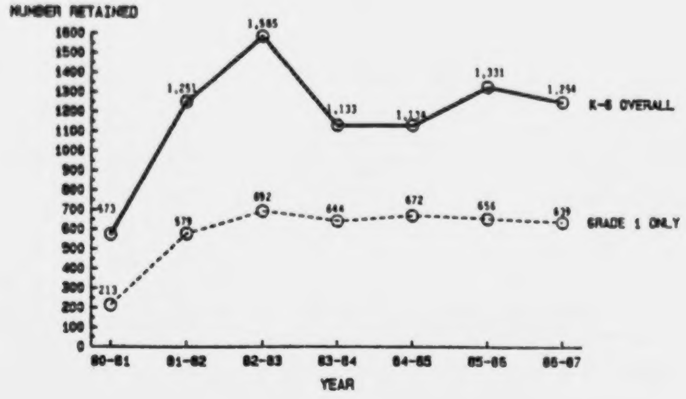


FIGURE B-2
STUDENTS REPEATING K-6
1980-81 THROUGH 1986-87



ELEMENTARY LEVEL

- The number of elementary retainees **doubled** between 1980-81 and 1981-82 with the adoption of the revised retention policy. The number retained rose again, to its highest point, in 1982-83 when the revised policy was first put into effect. The number of retainees has decreased and stabilized since then. The impact of House Bill 72 will be felt this spring; implications for next year's rates are not clear as yet.

- Grade 1 has had the highest retention rate at the elementary level throughout this period. First graders have represented 37% (in 1980-81) to 59% (1984-85) of those retained. First graders represent 51% of the elementary students retained this year. The **number** of first graders repeating a grade has been around 600 students since 1981-82.

- The number retained at the primary grades (1-3) exceeds the number retained at the intermediate level (4-6).

FIGURE B-3
STUDENTS REPEATING 7-12 IN 1986-87

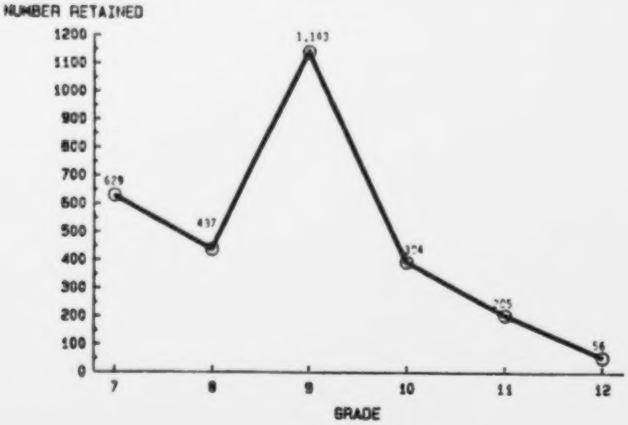


FIGURE B-4
STUDENTS REPEATING 7-8
FROM 1980-81 THROUGH 1986-87

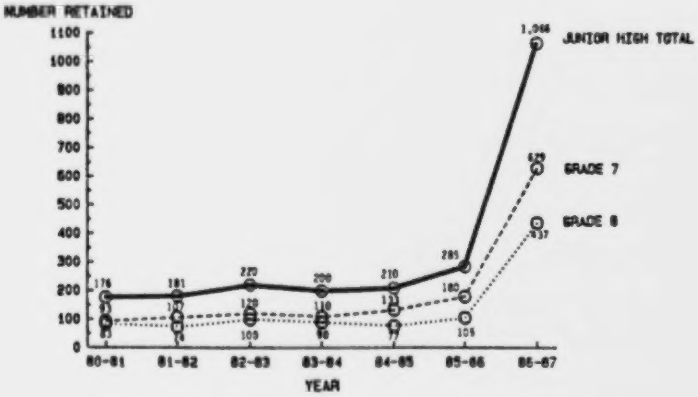
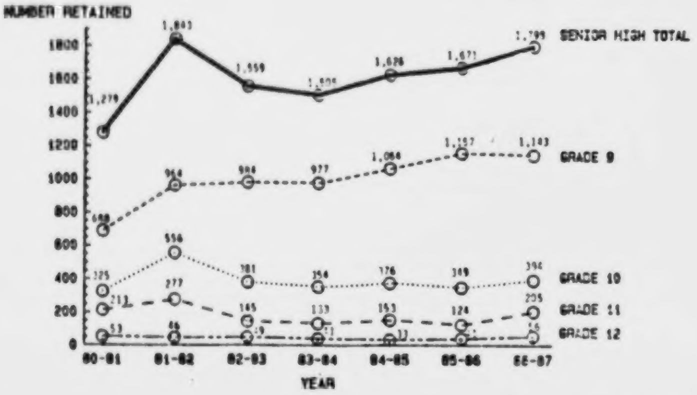


FIGURE B-5
STUDENTS REPEATING 9-12
FROM 1980-81 THROUGH 1986-87



JUNIOR HIGH LEVEL

- The number of junior high school students repeating a grade was fairly stable from 1980-81 to 1985-86. However, the rate rose **dramatically** (374%) between 1985-86 and 1986-87 with the implementation of new rules associated with HB 72.
- Seventh graders have higher retention rates than eighth graders. In 1986-1987, the number retained at seventh grade (629) and first grade (639) were about the same.

SENIOR HIGH LEVEL

- The number of senior high students who failed to meet promotion criteria has been rising slowly since 1983-84. The increase between 1985-86 and 1986-87 was 7.6%.
- **By far, grade 9 has the highest number of students retained** at any grade level K-12. The number of ninth graders failing to meet promotion standards in 1986-87 is 1,143.

OVERALL

- o The total number of students failing to meet promotion standards has doubled in AISD from 1980-81 (2,028) to 1986-87 (4,118).
- o Secondary retention rates increased 46% between 1985-86 and 1986-87 (from 1,956 to 2,864).
- o If kindergarten is excluded, the first grade in each grade span (1-6, 7-8, 9-12) has the highest number of retainees.
- o Most elementary and junior high retainees (about 2,150) repeat a full grade; new programs started in 1986-87 at the junior high level allowed mid-year promotion for 170 students. High school retainees (1,798) repeat only credit units failed.

Evaluation Question D1-2. How many secondary students who failed to be promoted in spring, 1986 were promoted/retained in fall, 1986? How many left AISD for another school district? Dropped out? Returned to AISD? How many attended summer school and were promoted/retained subsequently?

AISD had summer school programs for retainees for several years. However, students were not promoted because of participation. Short-term mastery learning results were very positive. However, the ITBS achievement of retainees who did and did not attend summer school was not significantly different by the following spring. It may be that a summer school program that led to promotion, with modified curriculum, structure, and length (longer school days or number of weeks) might be worth consideration.

SECONDARY

State law and local policy prescribe that students in grades 7 and 8 who fail to meet promotion requirements be retained or provided alternative programs. Secondary schools have been focusing on ways to help students avoid retention altogether (by reducing the number of F's earned) and to move on to the next grade as soon as possible. Tutoring, remediation, teacher training, equalization of grading standards across teachers, counseling, attendance checks--all could help students pass courses and avoid retention. Our focus here, however, will be on two specific alternatives designed to avoid retention (summer school) and shorten retention time (the Transitional Academic Program/TAP and Academic Incentive Program/AIP).

Summer School

Junior and senior high students who are short one or two courses for promotion can attend summer school to earn this credit (.5 per course). A check was done to see how many of those who failed to meet promotion criteria attended summer school and passed. This rate was compared to the promotion rate of those who did not attend summer school.

Junior high. Overall, 1,970 students had not met promotion criteria by May, 1986--400 attended summer school and 1,570 did not.

FIGURE B-6
FALL, 1986 STATUS OF JUNIOR HIGH STUDENTS NOT ELIGIBLE FOR PROMOTION AS OF SPRING, 1986

Summer School Status	Total Number	Promoted		Retained		Left AISD	
		#	%	#	%	#	%
Attended	400	315	79%	40	10%	45	11%
Did not attend	1,570	300	19%	808	52%	462	30%

- Most of those attending summer school were promoted (315 or 79%), but some who did not attend were also promoted (300 or 19%).
- A larger percentage of those not attending summer school failed to re-enroll in AISD this fall (30% versus 11%).

Those promoted who did not attend summer school were probably promoted because of grade changes or unexcused absence appeals. It appears those with appeals pending may have been less likely to attend summer school.

Senior high. Overall, 1,350 students had not met promotion criteria by the end of 1985-86 -- 363 attended summer school and 987 did not.

FIGURE B-7
FALL, 1986 STATUS OF SENIOR HIGH STUDENTS NOT ELIGIBLE FOR PROMOTION AS OF SPRING, 1986

Summer School Status	Total Number	Promoted #	Promoted %	Retained #	Retained %	Left AISD #	Left AISD %
Attended	363	189	52.1%	168	46.3%	6	1.7%
Did not attend	987	115	11.7%	848	85.9%	24	2.4%

- o The success rate for high school was 52%, lower than the junior high rate of 79%.
- o Of those not attending high school summer school, 12% were promoted--probably because of grade changes and attendance appeals.

Alternative Placement Programs

AISD has implemented two new programs at the secondary level this year designed to provide alternative instructional programs and faster progress and promotion for seventh and eighth graders.

The **Transitional Academic Program (TAP)** allows students to enroll in eighth or ninth grade courses while they repeat failed seventh or eighth grade courses. The program is available at Rice and Robbins secondary schools (grade 7-12). Students who remain at the regular junior highs do not have the opportunity to take the next grade's courses and therefore take more grade level courses than necessary. To be promoted, TAP students enrolled must meet the promotion standards for their grade. Frequent progress reports on performance are provided to students.

TAP is designed to be a one semester placement for seventh and eighth graders. Fall, 1986, enrollments and success rates are shown below.

FIGURE B-8
SUCCESS OF FALL, 1986 TAP ENROLLEES

Status	Robbins #	Robbins %	Rice #	Rice %
Passed	103	89.6%	42	87.5%
Withdrew	10	8.7%	5	10.4%
Failed	2	1.7%	1	2.1%
Total Enrolled	115	100.0%	48	100.0%

Procedure

Information Need 2. How many students are retained at the secondary level because of the attendance criteria?

This question was added mid-year on request. It was feasible to address this question at the junior high level but not at senior high level. At senior high, it is not possible to determine which class(es) cause a student to be retained--those with excessive absences or those without.

The information for junior high was determined by a review of a standard data processing printout, SGRJRTEM (as of 6/10/86) which reflected the status of the 1,990 students listed as retained at the end of spring, 1986. The actual program name used was SGR740P2.

All retainees at each school were listed. Those with two messages listed--"good overall" and "NG" (no grade) were retained for reasons of excessive absence. This basically means their overall grade point average was sufficient to be promoted but a grade could not be granted in one or more classes because of excessive absences. Hand tallies were made of the number of retainees retained for absence reasons by school, grade, and overall.

Results

Figure B- shows the number of junior high students retained because of excessive absences as of the end of June, 1986. Note that numbers will not match other retention data in this appendix because these are recommended retainees as of June, 1986--not actual retainees.

Overall, 74 (6.73%) of the 1,099 seventh graders and 84 (9.43%) of the eighth graders retained were retained because of the attendance policy.

Thus, the percentage retained only because of attendance was fairly low overall, but higher at grade 8 than 7. Still, a sizable group of students (158) failed to be promoted simply because of attendance. It should be noted that: 1) grades and promotion status are sometimes changed after appeals of unexcused absences, and 2) it is likely that many other students retained based on grades earned those low grades because of attendance problems.

School	Grade	Excessive Absence Retentions	Total Retained At School
Bedichek 054	7 8	10 6	161 135
Burnet 046	7 8	3 13	111 87
Dobie 055	7 8	21 14	108 83
Fulmore 043	7 8	0 0	127 112
Lamar 045	7 8	4 2	78 63
Martin 051	7 8	0 0	116 106
Murchison 052	7 8	28 42	76 91
O. Henry 047	7 8	6 4	94 69
Pearce 048	7 8	1 0	155 74
Porter 049	7 8	1 3	73 71
Total	7 8	74 (6.73%) 84 (9.43%)	1,099 891

Figure B-9. RETENTION RATES, SPRING, 1986, JUNIOR HIGH. The number of students retained solely because of excessive absences is compared to the total number retained at the school.

RETENTION PROGRAM

Appendix C

DISTRICTWIDE SURVEYS

Districtwide Surveys

Purpose

The purpose of this section is to provide information to answer the following information need.

Information Need I1. What instructional alternatives are being utilized with retainees?

Procedure

The survey questions were developed by the evaluator in charge of evaluating the Retention/Promotion program. Once reviewed by appropriate personnel, the questions were passed on to the evaluator in charge of sending out the survey to about half of the teachers and all campus and central administrators in the Austin Independent School District (AISD) (see Attachment C-1 for details). This year the teacher and administrator surveys went out between March 13 through April 21.

Sample	Item Numbers
Administrators- Elementary	19, 39, 40, 41, 42 43, 44, 45, 46, 47, 48, 49, 50, and 51
Teachers	
Grades K-6	114
Grades 1-4	115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, and 127

Analysis

The data analyst produced printouts showing the number and percent of respondents giving each possible response. Percentages were recalculated for items 115-126 on the teachers' survey and items 39-50 on the administrators' survey deleting the categories "have not used" and "have no retainees."

Results

Figure C-1 shows the administrators' responses to the spring survey. Figure C-2 shows teachers' responses. Attachment C-2 includes responses to open-ended items and general comments received.

The first question asked was whether retention of students with serious achievement deficiencies was beneficial.

- Of the 145 administrators responding 35% agreed, 49% were neutral and 31% disagreed. (Figure C-1, Item 19)
- Of the 77 teachers responding, 65% agreed, 17% were neutral and 18% disagreed. (Figure C-2, Item 114)

Information Need II. What instructional alternatives are being utilized with retainees?

Figure C-3
PERCENTAGE OF TEACHERS AND ADMINISTRATORS REPORTING USE OF APPROACHES

APPROACH	Percent Reporting Use			
	Teachers		Administrators	
1. Increased time retainees read aloud	46/88	52.3%	27/34	79.4%
2. Tutoring: During the school day	50/98	51.0%	33/34	97.1%
3. Increasing expectations with retainees this year	37/74	50.0%	40/47	85.1%
4. Spending additional time on reading during the day	42/87	48.3%	34/39	87.2%
5. Compensatory programs	36/80	45.0%	27/36	75.0%
6. Grouping by ability within grade level (besides reading)	30/88	34.1%	29/37	78.4%
7. Tutoring by others besides teachers	29/96	30.2%	32/47	68.1%
8. Grouping by ability across grade level (besides reading)	20/85	23.5%	20/33	60.6%
9. Transition class: K-1	11/66	16.7%	4/43	9.3%
10. Transition class: 1-2	9/85	10.6%	6/39	15.4%
11. Tutoring: After school	8/91	8.8%	9/44	20.5%

Teachers and administrators both frequently mentioned tutoring retainees during the day and increasing expectations for retainees. Teachers mentioned having retainees read aloud most often, administrators mentioned spending additional time on reading more often than reading aloud.

- All teachers (N=11) and administrators (N=4) responding agreed that the use of transition classes in grades K-1 with retainees were used with some success. (Figure C-1, Item 39 and Figure C-2, Item 115)

- The majority of teachers and administrators responding agreed that the use of transition classes in grades 1-2 with retainees were used with some success. (Figure C-1, Item 40 and Figure C-2, Item 116)

- The majority of the teachers and administrators responding agreed that tutoring/remediation for short intense periods during the day and after school was used successfully. (Figure C-1, items 41 and 42 and Figure C-2, Items 117 and 118)

- Most administrators and teachers responding agreed that tutoring by others besides teachers was used successfully with retainees. (Figure C-1, item 43 and Figure C-2, Item 119)

- Almost all teachers and administrators thought retainees had been served by compensatory programs with some success. (Figure C-1, Item 44 and Figure C-2, Item 120)

- The majority of teachers responding thought they had unsuccessfully grouped retainees by ability (in subjects other than reading) within grade and across grades. The administrators responding had similar views. (Figure C-1, Item 45 and 46 and Figure C-2, Items 121 and 122)

- Only 3 of 42 teachers responding thought they were unsuccessful in the time spent on additional reading with retainees. Only one of 34 administrators answered the same. The rest reported at least some success. (Figure C-1, Item 47 and Figure C-2, Item 123)

- Teachers (98%) and administrators (100%) agreed that teachers were successful when increasing the amount of time retainees read aloud. (Figure C-1, Item 48 and Figure C-2, Item 124)

- Of 55 teachers responding, five thought they were unsuccessful in finding a variety of ways to motivate retainees this year. All administrators thought their teachers had been successful in this area. (Figure C-1, item 49 and Figure C-2, Item 125)

- Only 4 of 37 teachers and one of four administrators indicated teachers were unsuccessful in their approach of increasing expectations with retainees this year. (Figure C-1, Item 50 and Figure C-2, Item 126)

A summary of teacher responses indicating items with highest percent "successfully" and highest "successfully" plus "with some success" ratings is given below:

Figure C-4
RATINGS OF SUCCESS

	Success		Success & Some Success	
1. Transition class: K-1	5/11	45.5%	11/11	100.0%
2. Compensatory programs	15/36	41.7%	35/36	97.2%
3. Increased time retainees read aloud	19/46	41.3%	45/46	97.8%
4. Grouping by ability within grade level (besides reading)	12/30	40.0%	27/30	90.0%
5. Increasing expectations with retainees	12/37	32.4%	33/37	89.2%
6. Grouping by ability across grade level (besides reading)	6/20	30.0%	19/20	95.0%
7. Tutoring by others besides teachers	8/29	27.6%	26/29	89.7%
8. Tutoring: During the day	13/50	26.0%	47/50	94.0%
9. Transition class: 1-2	2/9	22.2%	8/9	88.9%
10. Spending additional time on reading during the day	8/42	19.0%	39/42	92.9%
11. Tutoring: After school	0/8	0.0%	8/8	100.0%

Of those teachers reporting the use of these alternatives with their retainees, the alternatives with the highest succes ratings were transition classes in K-1, compensatory programs, and grouping by ability within grade level (besides reading).

High ratings of overall success (ratings of success plus some success) were reported for all alternatives with transition classes in K-1, tutoring after school and compensatory programs getting the highest ratings.

Other successful approaches used with retainees as provided by teachers and administrators are listed in Attachment C-2.

AUSTIN INDEPENDENT SCHOOL DISTRICT
OFFICE OF RESEARCH AND EVALUATION

RESPONSE SUMMARY FOR SPRING 1987 ADMINISTRATOR SURVEY - RETAINEES

19. RETENTION OF STUDENTS WITH SERIOUS ACHIEVEMENT DEFICIENCIES IS BENEFICIAL.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	145/172 (84%)	15 10.3%	36 24.8%	49 33.8%	34 23.4%	11 7.6%
ELEMENTARY	43/57 (75%)	6 14.0%	13 30.2%	15 34.9%	8 18.6%	1 2.3%
CENTRAL OFFICE	102/115 (89%)	9 8.8%	23 22.5%	34 33.3%	26 25.5%	10 9.8%

39. HAVE YOUR TEACHERS USED TRANSITION CLASS GRADES K-1 (PLACED IN FIRST GRADE) WITH RETAINEES THIS YEAR?
A. HAVE NOT USED D. YES, BUT UNSUCCESSFULLY
B. YES, SUCCESSFULLY E. HAVE NO RETAINEES
C. YES, WITH SOME SUCCESS

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	43/55 (78%)	39 90.7%	4 9.3%	0 0.0%	0 0.0%	0 0.0%
ELEMENTARY	43	39 90.7%	4 9.3%	0 0.0%	0 0.0%	0 0.0%
	N=4		100.0%			

Figure C-1. ADMINISTRATOR SURVEY RESULTS ON RETENTION. (Page 1 of 7)

AUSTIN INDEPENDENT SCHOOL DISTRICT
OFFICE OF RESEARCH AND EVALUATION

RESPONSE SUMMARY FOR SPRING 1987 ADMINISTRATOR SURVEY - RETAINEES

40.HAVE YOUR TEACHERS USED TRANSITION CLASS GRADES 1-2
(PLACED IN SECOND GRADE) WITH RETAINEES THIS YEAR?
A. HAVE NOT USED D. YES, BUT UNSUCCESSFULLY
B. YES, SUCCESSFULLY E. HAVE NO RETAINEES
C. YES, WITH SOME SUCCESS

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	39/50 (78%)	32 82.1%	3 7.7%	2 5.1%	1 2.6%	1 2.6%
ELEMENTARY	39	32 82.1%	3 7.7%	2 5.1%	1 2.6%	1 2.6%
	N=6		50.0%	33.3%	1.7%	

41.HAVE YOUR TEACHERS USED TUTORING/REMEDIATION FOR
SHORT INTENSE PERIODS DURING THE DAY WITH RETAINEES
THIS YEAR?
A. HAVE NOT USED D. YES, BUT UNSUCCESSFULLY
B. YES, SUCCESSFULLY E. HAVE NO RETAINEES
C. YES, WITH SOME SUCCESS

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	34/43 (79%)	1 2.9%	11 32.4%	20 58.8%	2 5.9%	0 0.0%
ELEMENTARY	34	1 2.9%	11 32.4%	20 58.8%	2 5.9%	0 0.0%
	N=33		33.3%	60.6%	6.1%	

Figure C-1. (Page 2 of 7)

AUSTIN INDEPENDENT SCHOOL DISTRICT
OFFICE OF RESEARCH AND EVALUATION

RESPONSE SUMMARY FOR SPRING 1987 ADMINISTRATOR SURVEY - RETAINEES

42. HAVE YOUR TEACHERS USED TUTORING AFTER SCHOOL WITH RETAINEES THIS YEAR?

A. HAVE NOT USED
B. YES, SUCCESSFULLY
C. YES, WITH SOME SUCCESS
D. YES, BUT UNSUCCESSFULLY
E. HAVE NO RETAINEES

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	44/55 (80%)	34 77.3%	3 6.8%	6 13.6%	0 0.0%	1 2.3%
ELEMENTARY	44	34 77.3%	3 6.8%	6 13.6%	0 0.0%	1 2.3%
	N:9		33.3%	66.7%	0.0%	

43. HAVE YOU USED TUTORING BY OTHERS BESIDES TEACHERS (E.G., STUDENTS, PARENTS) WITH RETAINEES THIS YEAR?

A. HAVE NOT USED
B. YES, SUCCESSFULLY
C. YES, WITH SOME SUCCESS
D. YES, BUT UNSUCCESSFULLY
E. HAVE NO RETAINEES

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	47/56 (84%)	15 31.9%	11 23.4%	21 44.7%	0 0.0%	0 0.0%
ELEMENTARY	47	15 31.9%	11 23.4%	21 44.7%	0 0.0%	0 0.0%
	N=32		34.4%	65.6%	0.0%	

Figure C-1. (Page 3 of 7)

AUSTIN INDEPENDENT SCHOOL DISTRICT
OFFICE OF RESEARCH AND EVALUATION

RESPONSE SUMMARY FOR SPRING 1987 ADMINISTRATOR SURVEY - RETAINEES

44. HAVE ANY OF YOUR RETAINEES BEEN SERVED BY COMPENSATORY PROGRAMS (CHAPTER 1, MIGRANT, SCE, TEACH AND REACH, BILINGUAL) THIS YEAR?

A. HAVE NOT USED
B. YES, SUCCESSFULLY
C. YES, WITH SOME SUCCESS
D. YES, BUT UNSUCCESSFULLY
E. HAVE NO RETAINEES

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	36/45 (80%)	8 22.2%	16 44.4%	11 30.6%	0 0.0%	1 2.8%
ELEMENTARY	36	8 22.2%	16 44.4%	11 30.6%	0 0.0%	1 2.8%
	N= 27		59.3%	40.7%	0.0%	

45. HAVE YOUR TEACHERS GROUPED RETAINEES BY ABILITY (IN SUBJECTS OTHER THAN READING) WITHIN GRADE LEVELS THIS YEAR?

A. HAVE NOT USED
B. YES, SUCCESSFULLY
C. YES, WITH SOME SUCCESS
D. YES, BUT UNSUCCESSFULLY
E. HAVE NO RETAINEES

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	37/42 (88%)	8 21.6%	13 35.1%	15 40.5%	1 2.7%	0 0.0%
ELEMENTARY	37	8 21.6%	13 35.1%	15 40.5%	1 2.7%	0 0.0%
	N. 29		44.8%	51.7%	3.4%	

Figure C-1. (Page 4 of 7)

AUSTIN INDEPENDENT SCHOOL DISTRICT
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RESPONSE SUMMARY FOR SPRING 1987 ADMINISTRATOR SURVEY - RETAINEES

46. HAVE YOUR TEACHERS GROUPED RETAINEES BY ABILITY (IN SUBJECTS OTHER THAN READING) ACROSS GRADE LEVELS THIS YEAR?

A. HAVE NOT USED
B. YES, SUCCESSFULLY
C. YES, WITH SOME SUCCESS
D. YES, BUT UNSUCCESSFULLY
E. HAVE NO RETAINEES

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	33/44 (75%)	13 39.4%	10 30.3%	10 30.3%	0 0.0%	0 0.0%
ELEMENTARY	33	13 39.4%	10 30.3%	10 30.3%	0 0.0%	0 0.0%
	N. 20		50.0%	50.0%	0.0%	

47. HAVE YOUR TEACHERS SPENT ADDITIONAL TIME ON READING DURING THE DAY WITH RETAINEES THIS YEAR?

A. HAVE NOT USED
B. YES, SUCCESSFULLY
C. YES, WITH SOME SUCCESS
D. YES, BUT UNSUCCESSFULLY
E. HAVE NO RETAINEES

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	39/46 (85%)	5 12.8%	13 33.3%	20 51.3%	1 2.6%	0 0.0%
ELEMENTARY	39	5 12.8%	13 33.3%	20 51.3%	1 2.6%	0 0.0%
	N. 34		38.2%	58.8%	2.9%	

Figure C-1. (Page 5 of 7)

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RESPONSE SUMMARY FOR SPRING 1987 ADMINISTRATOR SURVEY - RETAINEES

48. HAVE YOUR TEACHERS INCREASED THE AMOUNT OF TIME RETAINEES READ ALOUD THIS YEAR?

A. HAVE NOT USED
B. YES, SUCCESSFULLY
C. YES, WITH SOME SUCCESS
D. YES, BUT UNSUCCESSFULLY
E. HAVE NO RETAINEES

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	34/44 (77%)	7 20.6%	6 17.6%	21 61.8%	0 0.0%	0 0.0%
ELEMENTARY	34	7 20.6%	6 17.6%	21 61.8%	0 0.0%	0 0.0%
	N=27		22.2%	77.8%	0.0%	

49. HAVE YOUR TEACHERS USED A VARIETY OF WAYS TO MOTIVATE RETAINEES THIS YEAR?

A. HAVE NOT USED
B. YES, SUCCESSFULLY
C. YES, WITH SOME SUCCESS
D. YES, BUT UNSUCCESSFULLY
E. HAVE NO RETAINEES

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	34/45 (76%)	3 8.8%	8 23.5%	23 67.6%	0 0.0%	0 0.0%
ELEMENTARY	34	3 8.8%	8 23.5%	23 67.6%	0 0.0%	0 0.0%
	N=31		25.8%	74.2%	0.0%	

Figure C-1. (Page 6 of 7)

AUSTIN INDEPENDENT SCHOOL DISTRICT
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RESPONSE SUMMARY FOR SPRING 1987 ADMINISTRATOR SURVEY - RETAINEES

50.HAVE YOUR TEACHERS USED THE APPROACH OF INCREASING EXPECTATIONS WITH RETAINEES THIS YEAR?

A. HAVE NOT USED
B. YES, SUCCESSFULLY
C. YES, WITH SOME SUCCESS
D. YES, BUT UNSUCCESSFULLY
E. HAVE NO RETAINEES

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	47/56 (94%)	7 14.9%	15 31.9%	24 51.1%	1 2.1%	0 0.0%
ELEMENTARY	47	7 14.9%	15 31.9%	24 51.1%	1 2.1%	0 0.0%
	N=40		37.5%	60.0%	2.5%	

51.DESCRIBE SUCCESSFUL APPROACHES YOU HAVE USED WITH RETAINEES THIS YEAR. (USE THE BACK IF NECESSARY.)

Figure C-1. (Page 7 of 7)

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RESPONSE SUMMARY FOR SPRING 1987 TEACHER SURVEY - RETAINEES

114. RETENTION OF STUDENTS WITH SERIOUS ACHIEVEMENT DEFICIENCIES IS BENEFICIAL.

A. STRONGLY AGREE
B. AGREE
C. NEITHER AGREE OR DISAGREE
D. DISAGREE
E. STRONGLY DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	77/114 (68%)	20 26.0%	30 39.0%	13 16.9%	10 13.0%	4 5.2%
ELEMENTARY	77	20 26.0%	30 39.0%	13 16.9%	10 13.0%	4 5.2%

115. HAVE YOU USED THE TRANSITION CLASS GRADES K-1 (PLACED IN FIRST GRADE) APPROACH WITH RETAINEES THIS YEAR?

A. HAVE NOT USED
B. YES, SUCCESSFULLY
C. YES, WITH SOME SUCCESS
D. YES, BUT UNSUCCESSFULLY
E. HAVE NO RETAINEES

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	66/112 (59%)	39 59.1%	5 7.6%	6 9.1%	0 0.0%	16 24.2%
ELEMENTARY	66	39 59.1%	5 7.6%	6 9.1%	0 0.0%	16 24.2%
	N=11		45.5%	54.5%	0.0%	

Figure C-2. TEACHER SURVEY RESULTS ON RETENTION. (Page [illegible] of 7)

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OFFICE OF RESEARCH AND EVALUATION

RESPONSE SUMMARY FOR SPRING 1987 TEACHER SURVEY - RETAINEES

116.HAVE YOU USED THE TRANSITION CLASS GRADES 1-2 (PLACED IN SECOND GRADE) APPROACH WITH RETAINEES THIS YEAR?
A. HAVE NOT USED
B. YES, SUCCESSFULLY
C. YES, WITH SOME SUCCESS
D. YES, BUT UNSUCCESSFULLY
E. HAVE NO RETAINEES

	NUMBER OF RESPONSES		A	B	C	D	E
TOTALS	85/127	(67%)	52	2	6	1	24
			61.2%	2.4%	7.1%	1.2%	28.2%
ELEMENTARY	85		52	2	6	1	24
			61.2%	2.4%	7.1%	1.2%	28.2%
	N:9			22.2%	66.7%	11.1%	

117.HAVE YOU USED TUTORING/REMEDIATION FOR SHORT INTENSE PERIODS DURING THE DAY WITH RETAINEES THIS YEAR?
A. HAVE NOT USED
B. YES, SUCCESSFULLY
C. YES, WITH SOME SUCCESS
D. YES, BUT UNSUCCESSFULLY
E. HAVE NO RETAINEES

	NUMBER OF RESPONSES		A	B	C	D	E
TOTALS	98/141	(70%)	14	13	34	3	34
			14.3%	13.3%	34.7%	3.1%	34.7%
ELEMENTARY	98		14	13	34	3	34
			14.3%	13.3%	34.7%	3.1%	34.7%
	N:50			26.0%	68.0%	6.0%	

Figure C-2. (Page 2 of 7)

AUSTIN INDEPENDENT SCHOOL DISTRICT
OFFICE OF RESEARCH AND EVALUATION

RESPONSE SUMMARY FOR SPRING 1987 TEACHER SURVEY - RETAINEES

118. HAVE YOU USED TUTORING AFTER SCHOOL WITH RETAINEES THIS YEAR?

A. HAVE NOT USED
B. YES, SUCCESSFULLY
C. YES, WITH SOME SUCCESS
D. YES, BUT UNSUCCESSFULLY
E. HAVE NO RETAINEES

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	91/116 (78%)	58	0	8	0	25
		63.7%	0.0%	8.8%	0.0%	27.5%
ELEMENTARY	91	58	0	8	0	25
		63.7%	0.0%	8.8%	0.0%	27.5%
	N=8		0.0%	100.0%	0.0%	

119. HAVE YOU USED TUTORING BY OTHERS (E.G., STUDENTS, PARENTS) WITH RETAINEES THIS YEAR?

A. HAVE NOT USED
B. YES, SUCCESSFULLY
C. YES, WITH SOME SUCCESS
D. YES, BUT UNSUCCESSFULLY
E. HAVE NO RETAINEES

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	96/132 (73%)	36	8	18	3	31
		37.5%	8.3%	18.8%	3.1%	32.3%
ELEMENTARY	96	36	8	18	3	31
		37.5%	8.3%	18.8%	3.1%	32.3%
	N=29		27.6%	62.1%	10.3%	

Figure C-2. (Page 3 of 7)

AUSTIN INDEPENDENT SCHOOL DISTRICT
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RESPONSE SUMMARY FOR SPRING 1987 TEACHER SURVEY - RETAINEES

120. HAVE YOUR RETAINEES BEEN SERVED BY COMPENSATORY PROGRAMS (CHAPTER 1, MIGRANT, SCE, TEACH AND REACH, BILINGUAL) THIS YEAR?

A. HAVE NOT USED
B. YES, SUCCESSFULLY
C. YES, WITH SOME SUCCESS
D. YES, BUT UNSUCCESSFULLY
E. HAVE NO RETAINEES

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	80/120 (67%)	21 26.3%	15 18.8%	20 25.0%	1 1.3%	23 28.8%
ELEMENTARY	80	21 26.3%	15 18.8%	20 25.0%	1 1.3%	23 28.8%
	N=36		41.7%	55.6%	2.8%	

121. HAVE YOU GROUPED RETAINEES BY ABILITY (IN SUBJECTS OTHER THAN READING) WITHIN A GRADE LEVEL THS YEAR?

A. HAVE NOT USED
B. YES, SUCCESSFULLY
C. YES, WITH SOME SUCCESS
D. YES, BUT UNSUCCESSFULLY
E. HAVE NO RETAINEES

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	88/126 (70%)	21 23.9%	12 13.6%	15 17.0%	3 3.4%	37 42.0%
ELEMENTARY	88	21 23.9%	12 13.6%	15 17.0%	3 3.4%	37 42.0%
	N=30		40.0%	50.0%	10.0%	

Figure C-2. (Page 4 of 7)

AUSTIN INDEPENDENT SCHOOL DISTRICT
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RESPONSE SUMMARY FOR SPRING 1987 TEACHER SURVEY - RETAINEES

122.HAVE YOU GROUPED RETAINEES BY ABILITY (IN SUBJECTS OTHER THAN READING) ACROSS GRADE LEVELS THIS YEAR?

A. HAVE NOT USED
B. YES, SUCCESSFULLY
C. YES, WITH SOME SUCCESS
D. YES, BUT UNSUCCESSFULLY
E. HAVE NO RETAINEES

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	85/120 (71%)	28 32.9%	6 7.1%	13 15.3%	1 1.2%	37 43.5%
ELEMENTARY	85	28 32.9%	6 7.1%	13 15.3%	1 1.2%	37 43.5%
	N=20		30.0%	65.0%	5.0%	

123.HAVE YOU SPENT ADDITIONAL TIME ON READING DURING THE DAY WITH RETAINEES THIS YEAR?

A. HAVE NOT USED
B. YES, SUCCESSFULLY
C. YES, WITH SOME SUCCESS
D. YES, BUT UNSUCCESSFULLY
E. HAVE NO RETAINEES

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	87/125 (70%)	15 17.2%	8 9.2%	31 35.6%	3 3.4%	30 34.5%
ELEMENTARY	87	15 17.2%	8 9.2%	31 35.6%	3 3.4%	30 34.5%
	N=42		19.0%	73.8%	7.1%	

Figure C-2. (Page 5 of 7)

AUSTIN INDEPENDENT SCHOOL DISTRICT
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RESPONSE SUMMARY FOR SPRING 1987 TEACHER SURVEY - RETAINEES

124.HAVE YOU INCREASED THE AMOUNT OF TIME RETAINEES READ ALOUD THIS YEAR?

A. HAVE NOT USED
B. YES, SUCCESSFULLY
C. YES, WITH SOME SUCCESS
D. YES, BUT UNSUCCESSFULLY
E. HAVE NO RETAINEES

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	88/135 (65%)	12 13.6%	19 21.6%	26 29.5%	1 1.1%	30 34.1%
ELEMENTARY	88	12 13.6%	19 21.6%	26 29.5%	1 1.1%	30 34.1%
	N=44		41.3%	56.5%	2.2%	

125.HAVE YOU FOUND A VARIETY OF WAYS TO MOTIVATE RETAINEES THIS YEAR?

A. HAVE NOT USED
B. YES, SUCCESSFULLY
C. YES, WITH SOME SUCCESS
D. YES, BUT UNSUCCESSFULLY
E. HAVE NO RETAINEES

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	94/136 (69%)	5 5.3%	22 23.4%	28 29.8%	5 5.3%	34 36.2%
ELEMENTARY	94	5 5.3%	22 23.4%	28 29.8%	5 5.3%	34 36.2%
	N=55		40.0%	50.9%	9.1%	

Figure C-2. (Page 6 of 7)

AUSTIN INDEPENDENT SCHOOL DISTRICT
OFFICE OF RESEARCH AND EVALUATION

RESPONSE SUMMARY FOR SPRING 1987 TEACHER SURVEY - RETAINEES

126. HAVE YOU USED THE APPROACH OF INCREASING EXPECTATIONS WITH RETAINEES THIS YEAR?

A. HAVE NOT USED
B. YES, SUCCESSFULLY
C. YES, WITH SOME SUCCESS
D. YES, BUT UNSUCCESSFULLY
E. HAVE NO RETAINEES

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	74/105 (70%)	9 12.2%	12 16.2%	21 28.4%	4 5.4%	28 37.8%
ELEMENTARY	74	9 12.2%	12 16.2%	21 28.4%	4 5.4%	28 37.8%
	N: 37		32.4%	56.8%	10.8%	

127. PLEASE DESCRIBE SUCCESSFUL APPROACHES YOU HAVE USED THIS YEAR WITH RETAINEES.

Figure C-2. (Page 7 of 7)

The key characteristics of these surveys are summarized in the table below.

	SURVEY		
CHARACTERISTICS	STUDENT	TEACHER	ADMINISTRATOR
Population Surveyed	All high school students	50% random sample of teachers	All campus and central administrators
Survey Topics	Vocational course interests, quality of education, "no pass, no play," teaching as a career, extracurricular activities, PAL Program, summer school	Adopt-A-School, AIM High, teacher appraisal system, Bilingual/ESL Program, Cable 8, extracurricular transportation, Magnet Program, newsletters, Outdoor Learning, PAL Program, Project BEST, retention, school climate, staff development, Student Assistance Program, TEAMS, testing, time use, Title VII	Academic Incentive Program, Adopt-A-School, AIM High, Bilingual/ESL Program, Cable 8, extracurricular transportation, Magnet Program, newsletters, Outdoor Learning, PAL Program, Project BEST, retention, school climate, School Community Guidance Program, staff development, Student Assistance Program, TEAMS, testing, time use, Title VII, Transitional Academic Program
Dates of Administration	November 14 - 24	March 13 - April 20	March 25 - April 21
Total Number of Items	29	210	86
Range of Items Per Respondent	10 - 15	13 - 23	10 - 18
Number of Surveys	15,646	1,851	297
Number of Surveys Returned	13,035	1,307	257
Percentage of Surveys Returned	83%	71%	87%

Administrator Surveys

Describe successful approaches you have used with retainees this year.

- Tutoring every day for 45 minutes
- One-on-one, peer tutoring, diagnostic testing followed by objective/mastery and small group conferencing
- Used modified TEP approach to help meet needs used Special Education as consultants; used LST when necessary.
- Support services (Chapter 1, Teach and Reach, volunteer tutors. Tutoring with regular teacher.
- Adopt a school has provided some limited tutoring with these students.
- Our counselor teaches them study skills. He also works with potential retainees in a preventive type program.
- Good teaching skills
- Chapter 1 Reading teachers assigned to a grade level attend team meetings, work closely with teacher of retainee. Schoolwide incentive for behavior and academic achievement motivates many retainees.
- Ability grouping, tutoring, and counseling
- Adopter tutors
- Tutoring; building self-concepts; student activities and projects; and rewards
- Tutorials and peer tutoring
- Small pupil/teacher ratio. Direct teaching strategies
- Guidance Active Learning
- Place with new teachers; adapt curriculum for success.
- Offered extensive Basic Skills Classes focusing on specific TEAMS objectives with extra practice and diagnostic testing monthly throughout the school year.

Teacher Surveys

Please describe successful approaches you have used this year with retainees.

- Variety of methods/materials to reach goals. Much positive reinforcement.
- Used parents. Sent home word lists and a home reader.
- Contracts, peer tutoring, and adult tutor.
- Positive reinforcement, praise, repetition, and peer tutoring.
- Peer tutoring. Reward system daily for trying to complete work.
- .Peer tutoring, especially at the beginning of the year.
- Motivation techniques, high praise for success, writing books, computer assist and extra attention.
- One-on-one attention when possible. Promote leadership - Ask them to explain procedure (routines) or demonstrate something to others.
- Talking to parents about children's progress all year.
- New materials presented in a different way than previously presented. Small group instruction on student's own level with student's success.
- Learning centers, listening skill activities, manipulative centers, close to the real things as possible.
- After school sessions; more one to one.
- Hand-on projects and manipulatives frequent review.
- My retainees did very well just re-learning and reviewing all skills along with the rest of the class. They were even ahead of most of the class.
- I give lots of input, lots of practice, lots of help. Then I test what has been taught and practiced on a consistent schedule.
- Test to find out skills needed. Use a variety of activities so they will not become bored with skills once taught.
- Classroom helpers/leaders and peer tutors.
- Reteach, individualized instruction, praise, self-reliance.
- Used listening centers and manipulatives.
- Reteaching often helps.
- Peer tutoring, individual projects, and reward system for chronic absences.

Retention Program

Appendix D

Literature Review

Literature Review

Purpose

A literature review was used to address the following decision and evaluation question:

> **Decision Question D1:** Should schools be encouraged to retain more or fewer students?
>
> > **Evaluation Question D1-7:** What does national research say about the effects of retention in grade?

Procedure

ORE maintains files of articles on two topics related to retention:

- Effects of retention,
- Alternatives to retention and their effects.

A complete search of the current literature was not done. Rather, articles are kept or requested as they appear in a variety of publications circulated through the office. Examples include Education Week, Phi Delta Kappan, Phi Delta Kappa Center on Evaluation, Development, and Research Hot Topics Series (one addressed retention and promotion this year), Harvard Educational Review and others. Another source is American Educational Research Association (AERA) proposals, papers, and contacts. Because ORE is recognized as an important source of information on this topic, we are generally kept abreast of new developments in the field.

Files of articles are now kept in the current permanent files (forwarded each year). It is possible they will be moved to the research files in the future.

Results

Research trends were summarized in two publications:

1) RETENTION OR PLACEMENT: Helping Very Low Achievers newsletter, ORE Publication No. 86.24, distributed to all elementary principals (and some other administrators and teachers).

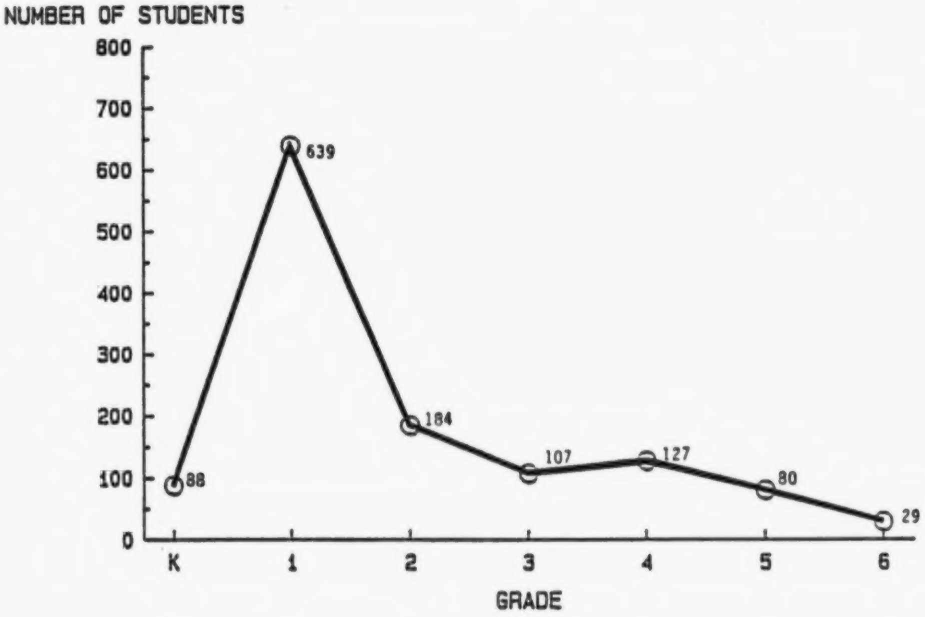
2) Retention or Promotion: Have Policies Passed or Failed? final report, ORE Publication No. 86.31, distributed to most administrators (including all principals).

Newsletter 86.24 is included as Attachment D-1.

RETENTION OR PLACEMENT:
Helping Very Low Achievers

Each year, educators must make difficult individual decisions about the best instructional placement for students who fail to master grade-level material. While promotion/retention policies have allowed retention or placement of very low achievers, retention has become a more popular option in AISD in recent years. In 1979-80, 652 elementary students were recommended for retention. In 1985-86, 1,331 AISD elementary students repeated a grade. In 1986-87, 1,254 AISD students in grades K-6 are repeating a grade.

1986-87 ACTUAL RETAINEES K-6
AISD STUDENTS REPEATING A GRADE IN 1986-87



Some key instructional questions merit very careful consideration:

- Is retention effective for these students?
- Which students is retention most likely to help?
- What alternative instructional methods are most likely to help these students (who are retained or placed)?

RETENTION EFFECTS

Research locally and nationwide basically suggests that, while some students may benefit from retention, most will not. It appears that retention may offer a short-term boost for some students in reading, but their learning rate does not increase enough to keep them up with the average for their new classmates. Eventually, most end up back at the bottom of the class.

The key to success for these students appears to be providing a different approach to instruction. Placement with special help is a better alternative than retention with special help for most very low achievers.

Retention Costs and Benefits

Costs for Most Students		Benefits for a Few Students
• Achievement growth rate in mathematics & reading does not improve long-term. Therefore, students fall behind again. • Loss of a year--an extra year is needed to graduate	• Loss of peer group • High risk of dropping out • About $3,500 per retainee for the school system--1,254 retainees is equivalent to $4,389,000.	• Better grasp of concepts, increased rate of learning • More success experiences--better attitudes toward school and self-esteem • Better TEAMS mastery

Short-term achievement effects

Results from previous studies have shown that, **in the short run, some students appeared to benefit from retention while others did not.**

- **The amount of achievement growth shown by individual retainees varied widely,** from actual losses in GE scores to gains of over two years (after one year of instruction). About half (52%) of the total 1983-84 group of retainees gained .8 GE or more (success criteria) in reading in one year; 37% gained .8 or more in mathematics.

- An ORE study of the success of a sample of 121 1983-84 retainees found that, **at the end of the repeated grade, about four of five (79%) retainees were considered "successful" but one in five (21%) was considered unsuccessful.** Success was based on the opinions of parents and teachers and ITBS reading gains (a reading gain of .8 grade equivalent (GE) or more -- the national average for low achievers). Parents and teachers were more likely to consider the child a success than were ITBS gains. The number of information sources indicating that these retainees were successful is shown below.

RETAINEE SUCCESS

Three sources: 1) parent survey responses, 2) teacher survey responses, and 3) ITBS reading gains after one year.

Sources Showing Success	Number of Cases	Percentage
3 out of 3	35	29%
2 out of 3	60	50%
1 out of 3	21	17%
0 out of 3	5	4%
Total Cases	121	100%

- **At the end of the grade repeated in AISD, on the average, retainees showed achievement gains in reading and mathematics that were generally significantly smaller than those of low achievers who had been promoted.** (Note: Students were matched on as many factors as possible, but the comparison is not perfect because there were reasons one group was promoted and the other retained. However, the wide variation in retention rates across schools made it more likely that retained students were similar to promoted students in other schools.)

Short-term attitudes

Based on a review of the research by Holmes and Mathews, retention generally hurts students' self-esteem and attitude toward school (although some students may improve).

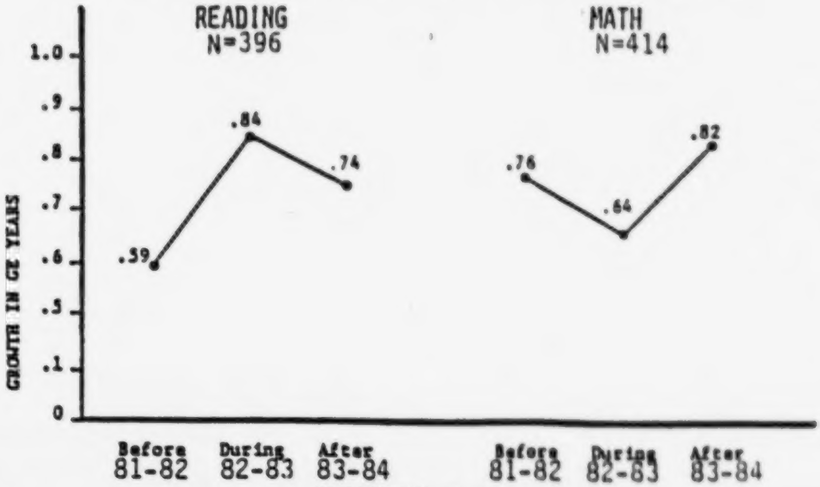
Long-term achievement effects

It appears that most students do not benefit in the long run from retention. National and AISD research both generally reveal larger gains for those low achievers promoted than retained (in reading and mathematics--especially mathematics) after one year or more.

In AISD, most students are retained because of difficulty in reading or difficulty in reading and mathematics. Few are retained because of problems with mathematics alone.

- Average **reading** growth increases during the grade repeated (from six to eight months) but declines once the child is promoted. **Students appear to need more continued support in reading after promotion.**
- Average **mathematics** growth, on the other hand, declines during the year repeated (from eight to six months) but increases once the students are promoted. **Students appear to need more challenge in mathematics during the repeated grade.**

AVERAGE GROWTH PATTERNS FOR THOSE REPEATING A GRADE IN 1982-83
Progress Before, During, and After Retention
Students with ITBS Scores for 1981 through 1984



Dropping out

National and AISD research have found retention and dropping out to be highly correlated. Being older than average for one's grade level was found to be a major predictor of dropping out in a recent AISD ORE study.

A recent Los Angeles study indicated that most of those retained in grades 1 and 2 failed to graduate. They found dropouts were five times more likely than nondropouts to have been retained.

While a causal link cannot be proven, a strong relationship has been found between dropping out and retention.

Other Costs

The costs and benefits of retention for students are the primary considerations. However, given the reseach results, it is important to note the budgetary costs. At approximately $3,500 per K-6 student, AISD will spend almost $4,400,000 in 1986-87 to finance an extra year of education for retained students.

WHOM TO RETAIN

The research suggests that the number of students who will benefit from retention is limited. It is more difficult to predict who might benefit.

- One national study (Sandoval and Hughes) found that first graders who benefited from retention tended to be those who were **relatively strong initially.** They had:
    - Some academic skills (had made some progress in first grade initially),
    - Good self-concepts,
    - Adequate social skills,
    - Parents who accepted retention and worked with the school, and
    - Teachers confident in the retention decision.
- Midway reviewed retention research and concluded that the best retention candidates were primary students, chronologically young, not opposed to retention, with parents willing to work with them.
- Twelve interviews with the teachers of retainees who had shown very large versus small achievement gains suggested that retainees who showed large gains after one year had **identifiable problems and teachers who developed and implemented specific plans to address them** (often showing great perseverance).
- An AISD and a national study attempted to identify a pattern of characteristics of successful retainees from centralized computer files--no pattern emerged in either study.

INSTRUCTIONAL ALTERNATIVES

Doing something different with very low achievers seems to be the most important key to improvement. New state policy emphasizes special attention be given to retainees' instructional program whether retained or placed. The research suggests that placement with remediation will be more helpful than retention with remediation for most of these students. What alternatives are available (for placed students and retainees)? Does research indicate whether these options are effective? Options include:

- Compensatory reading and/or mathematics programs (e.g., Chapter 1, Chapter 1 Migrant, SCE, bilingual, Teach and Reach),
- Transition classes (K-1 or 1-2),
- Special education,
- Special curriculum groupings (across or within grades),
- Tutoring (by teachers, older students, parents, peers).

Most of us are familiar with compensatory programs, special education services, and tutoring; a description of transition classes and special classroom groupings may be helpful.

Transition classes select kindergarten or first-grade students who are not ready for the regular first- or second-grade curriculum and provide this material over a two-year period rather than one. While it must be recognized that these classes still cost the student and school system an extra year, at least the curriculum is paced and tailored to students' needs and avoids repetition.

Special curriculum groupings generally involve mixing students across classes or grades. Children can thus receive appropriate instruction in each subject according to their needs and stay with their age-peers at least part of the day.

Compensatory programs are the only ones studied fairly thoroughly to date; these have been found to help many low achievers if well implemented. Informal research provides support for the other approaches; all hold promise. Aumsville, Oregon reports fewer behavior problems in their smaller transition classes and good progress once students enter the regular curriculum. More stringent research is needed on the success of these approaches. ORE plans to study this issue in 1987-88 based on approaches used this year.

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